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THE EFFECTS OF TYPE OF WEB SUPPORT AND INSTRUCTIONAL
MODE ON THE KNOWLEDGE AND DISCRIMINATION OF
MUSICAL TEXTURE AMONG UNDERGRADUATE
ELEMENTARY EDUCATION MAJORS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Music

by

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ABSTRACT

The purpose of this study was to investigate the effects of varying types of out-of-class web support media and active (performance) versus passive (listening) modes of in-class instructional activities on the ability of university level non-musicians ($N = 58$) to define and identify specific characteristics of music texture from printed and recorded musical excerpts. Near and far transfer of learning was also examined. Three web support treatments consisted of investigator-designed supplementary web sites, available for out-of-class access, containing visual content only, audio and visual content, or progressively disclosed text, graphics, and sound. Two instructional mode treatments consisted of participation in children's song performance activities or listening to illustrative excerpts representing a wide variety of standard musical styles, genres, and performance media. Both treatments were administered in conjunction with a musical texture unit consisting of six consecutive lessons within the context of a music fundamentals/methods course for undergraduate elementary education majors. Pretest and posttest definition, printed excerpt, and listening excerpt scores, along with post-treatment near and far transfer listening test scores were recorded. Post-treatment subject attitudes were assessed, and web use time was reported.

Although posttest gains were significant, results indicated no significant effect on content mastery resulting from variations in web

support medium or mode of in-class instruction ($p > .05$). Participation in children's song performance activities was as effective as listening experiences for texture instruction. Near and far transfer test results were also similar among all subgroups, however, there was a significant interaction between transfer response and instructional mode ($p = .0002$). Subjects in both the performance group ($n = 29$) and the listening group ($n = 29$) were able to identify texture characteristics for recordings of standard literature better than for recordings of children's songs. Self-reported web use time suggested that increased use of web support materials did not result in increased posttest gains, and use of web materials decreased as technical complexity and file size of media increased. Student attitudes toward out-of-class web support were generally positive, but reflected some frustration with home access difficulties and lengthy download times for multimedia files.

CHAPTER 1

STATEMENT OF THE PROBLEM AND REVIEW OF LITERATURE

Statement of the Problem

During recent decades, the use of electronic information technologies has impacted education at all levels, continually making available new methods for the implementation and delivery of instruction. While implementations of computer technologies in education have faced difficulties common to the development cycle of any new instructional process, music educators in particular have faced issues such as lack of accessibility, training, and research (Berz & Bowman, 1994). Limited school funding has been a major factor in slowing the adoption of technology-supported music instruction. Even in schools where technology is a priority, the expense of computers and electronic music equipment has often led to a high student-to-computer ratio, with the effect of limiting instructional computer applications to peripheral use. In 1992, computer availability in K-12 classrooms nationally was estimated at only one for each 10 to 30 students (Krondracke, 1992).

More recently, governmental and private technology initiatives, along with increased technology awareness in educational standards, have pushed these issues to the forefront of public attention. Technology is represented with increasing frequency in national K-12 curricular standards, and technology education is itself an area of curricular concern

(Bellinger, 1996; Foster, 1996; Glennan & Melmed, 1996; ISTE, 1998).

Competency standards for the use of technology by university students (Furst-Bowe, et al., 1996) and by music students and teachers have also been developed (Deal & Taylor, 1997; Rudolph, Richmond, Mash, & Williams, 1997).

In addition to this concern, the recent political climate has seen considerable support for the connection of schools and universities to the internet, and continual improvements in world-wide web and multimedia technology make this an increasingly viable medium for the convenient delivery of content and instruction. Large-scale internet connection initiatives in educational institutions, including extensive computer hardware and software access for students, have beneficial implications for music instruction. Beyond the internet's facility for communication and information access across time and distance, this technology also facilitates local implementation of instructional applications in music which might otherwise be too expensive or too low in priority. Much of its usefulness in music education lies in the ability to provide greater access to materials and activities traditionally available only in the classroom, or in a specialized lab or resource room, without additional investment in dedicated equipment and support.

In view of these circumstances, use of the internet as a means of supporting music instruction is an important area of inquiry, and may be

well suited for pre-service elementary education students enrolled in introductory music courses. Typically such students are required to achieve competence in understanding of musical concepts at a beginning level in a short period of time, but often without the benefit of independent access to instructional support, materials, and technology applications that may be helpful. Instructor-designed web support could provide independent, out-of-class access to text-based course content, it could provide printed musical excerpts and graphic representations of musical content, and it could provide access to short, recorded musical excerpts. Additionally, the multimedia capabilities of the world wide web make it possible to provide progressively disclosed instructional content in time with the music, perhaps resembling in-class instruction, or for students to experience and practice examples of musical concepts repeatedly on their own.

These capabilities make the world wide web well suited for providing instructional support which is focused on listening experiences and music literacy. But, one aspect of in-class music instruction which cannot be easily reproduced through independent web support is the group performance experience. Creating and experiencing music through singing and playing is an important goal in music education for children (Music Educators National Conference, 1994), and the inclusion of such activities in pre-service teacher training is perceived as vital. Whether participation in children's musical performance activities and experiences impact pre-

service university students' understanding of musical concepts differently from listening experiences, however, is worthy of investigation, especially as it relates to the efficacy of web-supported instruction in basic music concepts.

Review of Literature

Computer-Based Technology in Music Education

Computer applications in music instruction are widely varied and have been the subject of considerable research during recent decades. With the internet poised as a potential delivery system for many traditional computer functions in music, it is appropriate to consider the range of important applications of computers in music instruction and their historical development. The identification of research and development tendencies establishes a framework within which to consider current trends in music education technology (Berz & Bowman, 1995).

Historical Perspective. Research in educational computing has reflected a four-stage development cycle for Computer-Assisted Instruction (CAI): (a) early computer development (to 1965), characterized by computer industry personnel training programs and collaborations among government, private industry and higher education; (b) mainframe development (1965-1978), during which significant university research demonstrated the potential usefulness of CAI in education; (c) microcomputer development (1978-1989), represented by the widespread

implementation of self-contained personal computers and traditional CAI in K-12 classrooms; and (d) development of emerging technologies (1989-present), such as hypermedia, multimedia, and virtual reality (Berz & Bowman, 1994). Development of distance-learning and web-based instruction represent a more recent research fork (Kahn, 1997a).

Early research concerning CAI in music education began during the second (mainframe) developmental period (Eddins, 1981; Hofstetter, 1985; McGreer, 1984; Robinson, 1987). Typically, it described the feasibility (Allvin, 1970; Deihl & Radocy, 1969; Peters, 1974), or development and implementation (Kuhn, 1974; Kuhn & Allvin, 1967; Placek, 1974) of specific applications in university settings. Studies of effectiveness of such applications followed, often comparing use of the technology with traditional instruction, and measuring other factors such as efficiency or student achievement (Hullfish, 1972; Von Feldt, 1971). In one important series of studies characterizing this line of research, Fred T. Hofstetter (1975, 1978, 1979, 1980, 1981a, 1981b) documented the development, implementation, and effectiveness of the GUIDO system for drill and practice in ear training, developed at the University of Delaware in conjunction with that university's PLATO project.

With the introduction of the personal desktop microcomputer, the next research and development cycle in music CAI began, mirroring the third developmental period described above (Alessi & Trollip, 1991).

Inexpensive hardware and music education software made widespread research in K-12 and university instruction plausible. Development and implementation (Wilson, 1981) and effectiveness (Deal, 1985; Hesser, 1988; Malave, 1991; Sanders, 1980; Weeks, 1987) of microcomputer applications were influenced by previous mainframe research (Berz & Bowman, 1994). A considerable volume of research can be cited regarding the positive instructional effects of CAI during this period, both in general education (Khalili and Shashaani, 1994; Kozma, 1991) and music education (Carpenter, 1991; Higgins, 1992).

During the fourth developmental period, music education computer research focused on emerging technologies in two general areas. The first, multimedia, relied on improvements in the microcomputer's processing power and speed, and its ability to control devices such as compact discs and videodiscs. Additionally, the development of the Musical Instrument Digital Interface (MIDI) protocol gave the microcomputer the ability to play and manipulate digitized musical sounds in a highly sophisticated manner. The second research area concerned development of the hypermedia-based organizational model, allowing a departure from the strictly linear programmed instruction which was previously characteristic of CAI. Hypermedia, artificial intelligence, and virtual reality facilitated a learner-centered instructional approach.

Meta-analyses of research on CAI in many subjects and at many levels have revealed significant differences in student achievement favoring its use (Hofstetter, 1985; Kulik, Bangert-Drowns, & Williams, 1983; Kulik, Kulik, & Cohen, 1980). There is, however, debate regarding the validity of effectiveness studies which directly compare technology-based instruction with traditional methods (Kozma, 1991). Clark (1983, 1985) suggested that the novelty effect of computer instruction can confound experimental results. In some cases, this type of effectiveness research was an outgrowth of the need to justify monetary investments in technology (Berz & Bowman, 1995) or was derived from a perception of technology as a unique instructional approach, rather than as a medium of instructional delivery (Kulik, Kulik, & Bangert-Drowns, 1985). Of greater importance may be the question of how best to employ new and existing technologies for educational improvement.

Instructional Applications. The use of electronic technology for instructional purposes in the music classroom is characterized by a varied collection of software applications and tools, some designed for specific instructional objectives and others intended to enhance musical productivity in general, but potentially useful to carry out instructional objectives. Most instructional applications in music can be grouped into several categories based upon their function and intended purpose.

Computer-Assisted Instruction represents the largest and most thoroughly documented category of software for instructional use. A defining characteristic of CAI applications is the primary purpose to teach. To this end, this type of software is usually narrow in focus and based upon an instructional model such as that defined by Alessi and Trollip (1991). This model applies a four-step approach consisting of presenting information, guiding the student, student practice, and assessing student learning. A CAI application may be centered in one or several of these steps. Alessi and Trollip (1991) described five traditional categories of CAI: (a) tutorials, (b) drill and practice, (c) simulations, (d) games, (e) testing.

CAI tutorials present information. They may or may not also guide the student, provide feedback, or adapt the presentation to student responses. In early CAI programs the computer controlled the presentation and student guidance may have been subject to computer limitations. Later, in early multimedia/hypertext applications such as the first audio-CD tutorials (e.g. Voyager CD Companion Series), student guidance was sacrificed in favor of a student-controlled presentation. These characteristics represent both the strengths and criticisms of early CAI, but today these issues must be relegated to discussions of instructional design since the technology itself imposes increasingly fewer limits on content presentation and student guidance.

Drill and practice may be both the most valuable and the most criticized mode of CAI from an instructional standpoint. This CAI function deals only with student practice and repetition, assuming pre-knowledge of the content on the part of the student. Sometimes criticized for their behavioristic nature or simply as being boring, early drill programs appeared much like electronic workbooks or flashcards (Alessi & Trollip, 1991). But the need for practice is recognized by behavioral and cognitive psychologists alike (Baddeley, 1990), and drill and practice programs have shown effectiveness with certain types of musical content and training, such as note recognition and aural skills (Berz & Bowman, 1994). CAI applications combining tutorial and drill and practice functions (e.g. "Keyboard Note Drill," "Music Flash Cards," and "Aural Skills Trainer" from Electronic Courseware Systems) can provide customized sessions with few limitations on quantities of exercises, and can establish a non-threatening, self-paced environment.

Simulations and virtual reality applications may teach about a process or how to do something by placing the student in an authentic representation of the real life situation. Elementary-level instructional music software, such as "Music Ace" (Harmonic Vision, 1997), often incorporates an exploratory environment for composition which simulates the graphical interface used by MIDI software sequencers. Such elementary-level applications typically include both tutorial and instructional game

components. Instructional games, which often represent a combination of the simulation and drill and practice modes of CAI, are plentiful in music education and can be effective, but in some instances these programs sacrifice clear instructional goals and content accuracy in the interest of student motivation.

Progress in artificial intelligence has led to the development of intelligent MIDI accompaniment software, such as "SmartMusic Studio" (Coda Music Technology, 1998), which listens and responds to a student's musical performance. This category of CAI is also effective in teaching a process which requires a particular sequence or has many rules such as musical composition. Boulet (1993) developed an "intelligent advisor system" which functioned to encourage transfer of knowledge among ninth-graders who were learning to compose with music notation software.

CAI programs may incorporate an assessment function for the purpose of guiding students, or maintain student records for use by the teacher, and computers can facilitate testing in other ways as well. Computer-generated, computer-administered, and computer-scored tests are well established. Computers can test music skills directly by responding to MIDI input or by "listening" through use of a microphone (Kolb, 1984; Peters, 1992). In tests of musical aptitude/ability, computer adaptive tests apply statistical models to maintain validity and reliability while allowing

fewer questions than paper and pencil versions (Vispoel, 1993; Vispoel & Coffman, 1992). For research purposes, computers can be used to record student behaviors (Buckner, 1997) and to collect and analyze data (Bowers & Tsai, 1990).

MIDI applications, notation software, and digital sampling software intended to manipulate sounds are often highly sophisticated musical tools which possess great potential for use in the classroom. These applications differ from CAI, however, in that they lack any instructional approach. Their instructional value lies in teacher-imposed objectives or student discovery. Incorporation of MIDI functionality has greatly influenced and enhanced recent developments in music CAI and multimedia instructional applications. Commercial curricular materials centered around computer-managed electronic keyboard labs and MIDI stations have also been incorporated into classroom music with documented success (Moore, 1991). Materials designed to aid instruction in MIDI skills for elementary and intermediate learners have recently emerged. Two such packages, "Music with MIDI" (McGraw-Hill, 1998), and "The MIDI Connection" (Silver Burdett Ginn, 1998), were designed to coordinate with commonly used basal textbook series in music.

Developments in computer presentation of multimedia and the hypermedia environment have had a great impact on CAI. Multimedia as a concept is not new. In the classroom, music teachers have mixed different

media such as verbal and written instructions, graphic representations, audio, and visual presentations. Filmstrips and slides linked to records or tapes are a traditional representation of instructional multimedia (Kozma, 1991). Computer-presented multimedia has created a new element for guided listening, with hypermedia-controlled CD-ROM and videodisc applications presenting visual information such as graphical animations, the musical score, or performance video clips (Berz & Bowman, 1994; Rudolph, 1996).

Although the structure of some commercial multimedia applications is strictly programmed and may or may not follow an instructional model, many such applications utilize a sophisticated hypermedia interface giving the user considerable control over presentation and allowing for great enhancements to the traditional CAI model. Interactive, hypermedia-based multimedia applications in music, such as Alfred's "Essentials of Music Theory" (Alfred Publishing, 1998) and "Practica Music" (Ars Nova Software, 1999), can effectively incorporate traditional CAI features with high quality sound production and graphic representations. Additionally hypermedia authoring environments allow the teacher to develop instructional applications which are tailored to the specific content of the course (Williams & Webster, 1996). Dobbe (1998) found significant note and key identification posttest gains among students

who used commercial and instructor-designed multimedia CAI for out-of-class practice in a music fundamentals course for non-music majors.

Web-Based Instruction. Since its beginnings as a network for national defense computers and advanced research information transfer in the 1960's, the internet has continually evolved. Developed at the European Particle Physics Laboratory in Geneva, Switzerland, the World Wide Web appeared on the internet in 1991 and within four years became the most highly used internet service. Development of the Mosaic browser in 1993 by the National Center for Supercomputing Applications at the University of Illinois helped the World Wide Web surpass both telnet in 1994 and ftp-data in 1995 for internet data volume. Soon, commercial e-mail service providers began offering Web access and the internet became saturated with commercial information. Truly an international network, in 1995 internet connections existed in 73 percent of the world's countries, and in 1996 there were 9, 472, 000 internet hosts. By virtue of this international character, regulation of the internet falls to no group in particular, but The Internet Society, founded in 1992, has advocated the use of standard protocols and has assisted in developing internet connections in developing countries (Crossman, 1997).

While the World Wide Web is the most commonly used internet service, there are other commonly used protocols which combine to enhance the usefulness of the internet. Current browser applications afford

the internet user easy access not only to HTTP (hypertext transfer protocol), the standard URL (uniform resource locator) format, but also through components and helper applications to e-mail, direct text-based communication among internet users; usenet, a collection of hierarchical newsgroups; telnet, which creates a terminal connection to a remote computer; and FTP (file transfer protocol), which facilitates uploading and downloading computer files (Crossman, 1997).

Web-Based Instruction (WBI) refers to the delivery of instruction to a remote audience using the web as the instructional medium. While the web may be only one of a number of tools available in Distance Education (Willis & Dickinson, 1997), it provides the primary means of communication for WBI. Kahn (1997b) outlined various components and features which impact WBI including (a) content development, (b) multimedia components, (c) internet tools, (d) computers and other hardware, (e) internet connections and service providers, (f) authoring programs, (g) servers, and (h) browsers and other applications. This particular instructional use of the World Wide Web moves beyond information access and permits delivery of content and activities which facilitate specific academic goals. In traditional instruction, teacher-centered and learner-centered strategies are often dictated by the constraints of the physical environment. By contrast, in WBI the teacher is positioned as the facilitator of learning discovery in a predominantly constructivist

environment, rather than as disseminator of knowledge (Relan & Gillani, 1997). Web-based delivery lends itself to the constructivist pedagogy by facilitating process-oriented student-centered discovery and exploration (Nord, 1998). Additionally, the combination of pre-developed multimedia courseware and unbounded World Wide Web access opens a new potential role for the learner—that of the user/creator (Hedberg, Brown, & Arrighi, 1997; Santi, 1997).

By definition, "web-supported" instruction may be thought of as unique in its purpose of providing access to instructional content at the local level in order to complement or support traditional classroom instruction, as opposed to web-based instruction which seeks to globally transport the entire instructional process to the internet, independent of the physical classroom. Like web-based instruction, web-supported instruction is generally more sophisticated than simply using the web as a platform for class presentation, or to make information available (Quinlan, 1997). It is also likely to provide learner feedback (El-Tigi & Branch, 1997).

The beneficial use of the internet for text- and graphics-based presentation and communications in distance learning settings is well documented, and internet delivery is entering university fine arts instruction as well (Chizmar & Williams, 1997). Nord (1998) developed a web-delivered professional resource to provide elementary classroom generalists and non-music specialists with support for interdisciplinary

integration of music into their classroom curricula using a constructivist approach. As this technology becomes increasingly adaptable to serve pedagogical needs, web-support and delivery may saturate the university environment (Blackett, 1998), but there are limitations to the kinds of class activities that can be easily carried out. Mayo (1998) listed testing, monitoring student involvement, discussions, and incompatible platforms and programs among those web limitations experienced by music instructors. One solution he addressed is the use of web-based Course Management Systems, or suites of software programs which assist instructors with authoring, discussion forums, email, grading, registration, etc.

The World Wide Web as a means of delivering Computer-Assisted Instruction in music is a continually evolving area of study, since the technology to present multimedia content effectively is in a seemingly endless stage of rapid development. For multimedia on the web, the constrictions of lengthy download times and lack of compatibility standards are important issues, but continuing advancements are making them less formidable. Sophisticated web-based multimedia music instruction is within the reach of music educators using compressed graphics, MIDI, digital audio, and streaming media files (Waters, 1999). For example, Gonzales (1998) documented the development of a web site using QuickTime-delivered MIDI and static graphic images of musical notation to

support instruction in error detection. This combination allowed students to simultaneously read and listen to musical exercises. The site was also designed to provide interactive feedback to practice exercises. Estrella (1998) described the integration of QuickTime-delivered MIDI and digital audio with music drills and tests using the HTML "frames" function and the JavaScript scripting language.

Multimedia helper applications such as QuickTime (Apple Computer, 1998) offer the potential to extend the presentation of visual content beyond static graphic images to progressively disclosed graphic images or motion video with increasing ease and practicality, and music educators are beginning to implement these advancements. Such helper applications allow a web browser application to initiate and display non-HTML content (i.e. multimedia files), but the inclusion of this content can come at the expense of compatibility, speed, and ease of use. Non-HTML content must have enough instructional value to warrant these potential trade-offs (Reynolds, 1998). In an introductory psychology course, Nowaczyk, Santos, and Patton (1998) found that no additional increase in student understanding resulted from "limited animation graphics" compared with static graphics in a large-group multimedia presentation. There may, however, be an expected benefit from progressively disclosed graphic presentation in the case of music instruction, since musical content itself occurs across time. Dobbe (1998) found 90% of survey respondents

(N = 166) indicated that in-class computer-based presentations incorporating text, audio, video, and graphics were either somewhat or very helpful in a music fundamentals course for non-music majors. The effectiveness of progressively disclosed graphic presentation specifically as a tool for independent web-based music instruction appears to be an area in need of research.

Teaching the Elements of Music through Guided Listening

Listening to music as an instructional strategy becomes effective when students are guided to listen, with expectation and purpose, for the isolated elemental components which may be present. Once identified, those components may be familiar, unfamiliar, or vaguely familiar to students, and the teacher may encourage assimilation and transfer depending on the purpose of the listening exercise (Bennett & Bartholomew, 1999). The use of organizational systems which represent musical content in listening excerpts is a common strategy for structuring “guided listening” experiences in the general music classroom at all grade levels (Bletstein, 1987). These organizational systems may be text-based or visual in nature. Kostka (1987) found that fourth and fifth grade students who listened to musical excerpts without guides showed significantly poorer ability for recall than students who listened with the benefit of either a written or visual guide. Killian (1983) found that narrative and

written listening guides had a positive effect on both achievement and attentiveness of sixth grade and high school students.

Two widely used general music textbook series, Share the Music (Bond, et al., 1995), published by MacMillan/McGraw-Hill, and The Music Connection (Beethoven, et al., 1995), published by Silver Burdett Ginn, make extensive use of static, visual representations of musical selections, usually on a single page or frame, commonly referred to as “listening maps.” Such visual aids may be placed or projected before the student while listening occurs, and may include visually organized information about any of the musical elements (e.g. rhythm, melody, harmony, timbre, texture, form, dynamics, or text) as they relate to the listening excerpt. By giving the student a pre-organized representation of what they are hearing, specific elements of the music may be made more immediately apparent if the visual elements clearly relate to the music. The ability to follow listening maps appears to decrease as visual information becomes more abstractly related to the music (Cassidy, 1997). Although listening map images are static, this type of delivery of information in itself exhibits characteristics of a multimedia presentation through the combination of visual and auditory media.

These findings are echoed in studies involving music with accompanying video content. While the presence of animated video led preschoolers to describe primarily visual content after viewing/listening

(Cassidy & Geringer, 1999), certain types of visual information do appear to impact cognitive as well as affective responses to music (Geringer, Cassidy, & Byo, 1997). In ratings of rehearsal and performance quality, audio-video recordings led to higher assessments than audio-only recordings (Cassidy & Sims, 1991; Johnson, 1991; Yarbrough & Hendel, 1993). Of key importance appears to be the direct relationship between the visual and musical content, and the listeners ability to comprehend it.

Active Versus Passive Involvement in Instruction

There is evidence to support the assumption that active, participatory involvement in music instruction has a positive impact on children's learning behaviors (Forsythe, 1977). This research supports the inclusion of participatory experiences in the training of pre-service elementary generalists as an effective methodology for elementary music instruction. Sims (1986) found that on-task attending behaviors of 3- to 6-year-olds were similar or better in listening activities incorporating active physical involvement compared to passive listening. Also with young children, Sims (1991) found that the ability to identify musical elements in participatory singing activities developed before the ability to focus on elements in music listening exercises. Children were more successful at discrimination tasks requiring attention to a single musical element than at tasks involving two or more simultaneous discriminations (Sims, 1991, 1995).

At the university level, tendencies toward adapting the stereotypical lecture and discussion-dominated class to focus instead on student activity and participation have been studied. While traditional methods are effective, activity-based strategies such as individualized instruction, interactive computer applications, active learning, and cooperative learning have been advocated (McKeachie, et al., 1992). The research literature defines active learning as involving student participation beyond listening to class lectures (Chickering & Gamson, 1987). Students must "read write, discuss, or be engaged in solving problems" (Bonwell & Eison, 1991). To be actively involved, students must engage in higher-order thinking skills such as analysis, synthesis, and evaluation. University level strategies to promote active learning in the classroom include informal small groups, cooperative student projects, simulations, role playing, and case studies (Meyers & Jones, 1993). The cooperative learning process involves such strategies as peer teaching and coaching, structured-learning teams, and problem-based learning (Millis & Cottell, 1997). Springer (1992) found that engineering students who participated in "structured active learning" were better able to place problems in context and to apply theory to practice than their counterparts in a traditional program of instruction.

Active involvement in music instruction is also related to increased observable attending behaviors among university students (Madsen & Geringer, 1983). Whether participatory performance experiences or

listening activities are more effective for teaching music fundamentals to undergraduates is, however, less clear. Listening activities involving a variety of recorded musical performances may have an impact on non-music majors' perceptions and attitudes concerning concert attendance (Sims & Kuhn, 1993) and use of music terminology (Cassidy & Speer, 1990).

Transfer of Learning

Transfer of learning may be conceptualized as both the application of learned matter in a new situation, and the facilitation of new learning by previously learned matter (Sadek, 1985). Gagne (1977) referred to the concepts of "lateral transfer," and "vertical transfer," which may occur on many levels. Lateral transfer tasks represent situations of similar complexity as the original task, while vertical transfer tasks represent situations of increased complexity. Salomon and Perkins (1989) argued that two types of transfer exist. "Low-road transfer" represents an automatic triggering of a well-practiced behavior in a new setting, while "high-road transfer" represents the abstract process of applying information from one context in a new one. Salomon and Perkins also point out that amount and distance of transfer are parameters which are distinguishable from one another. Although amount of transfer is often easily measured by the resulting performance gains in a new context, distance of transfer is more arbitrary and difficult to measure. Distance refers to transfer ability in like, somewhat similar, and remotely similar contexts.

The difficulty in measuring transfer consistently is as much a difficulty in defining it consistently. Transfer is largely context-specific, meaning that amount and distance of transfer may depend upon the type of learning which has occurred (Kolers & Roediger, 1984). Repetitive practice and characteristic low-road transfer mechanisms have a greater effect on amount than on distance, but are greatly dependent upon the factor of time. Distance is more greatly affected by the high-road mechanisms of transfer which Salomon and Perkins (1989) called "mindful abstraction." When transfer occurs as a result of such conscious, purposeful comprehension, distant applications may be made with quick and lasting effects. In fact, while active learning and learner discovery techniques may not necessarily produce better learning outcomes, they do facilitate more distant transfer abilities than passive instruction (Mayer & Greeno, 1972). Kolers and Roediger (1984) noted the occurrence of both near and far transfer failure anomalies, demonstrating that transfer distance does not appear to function consistently according to a measurable scale.

Research in music education has centered on transfer in both musical and nonmusical areas (Sadek, 1985), and general and specific tasks. In terms of musical perception, transfer is a core tenet of the cognitive theory of musical thinking and learning (Boardman, 1989). In this sense, transfer in musical thinking is a metacognitive (Pogonowski, 1989) and culturally driven (Woodford, 1994) skill. DeNardo and Kantorski (1995)

examined the cognitive process of "transformation" as the conceptualization of musical similarities and differences (Serafine, 1988) in varying degrees across time. In comparing musical phrases which were elementally different, similar, or the same, they found that second- and fifth-graders identified contrasting phrases more accurately than like phrases.

Several studies have measured transfer of specific music-related behaviors. Geringer and Madsen (1987) found that music students did transfer skills learned in a music education research class to proposed research in applied music settings. However, in examining transfer of music teaching concepts from an undergraduate methods course to a studio setting, Price (1992) concluded that despite "teaching for transfer," it could not be assumed that skills acquired in one setting would be applied in the other. With pre-service elementary education majors, Cassidy and Speer (1990) found that combined vocabulary and listening training improved the use of learned music terminology for written concert descriptions.

Regarding transfer of performance skills, improved vocal accuracy due to sightsinging training among undergraduate non-musicians did not lead to improved pitch accuracy in singing familiar songs (Cassidy, 1993). Change in tempo was found to negatively affect the learned performance skills of both novice and expert instrumentalists, suggesting lack of transfer in practice settings (Duke & Pierce, 1991; Pierce, 1992). With second- and

sixth-graders, Shehan (1987) concluded that combined audio and visual (rote and note) presentation did facilitate the transfer of rhythm concepts from notation to performance. Changes in timbre functioned to encourage the transfer of chord change identification skills of kindergarten and first-grade children by helping them to isolate the harmonic elements (Costa-Giomi, 1994).

Two studies explored the effects of technology-enhanced instructional techniques on transfer of musical knowledge. Boulet (1993) concluded that an intelligent advisor system, which intervened to provide automated feedback, improved the transfer of composition skills among ninth-graders using musical composition software. Sun (1993), using a researcher-designed CAI application to develop pre-composition skills in three- to six-year-old children, observed difficulty in the transfer of understanding from visual icons to aural stimuli.

Summary

Use of the World Wide Web for delivery and support of authentic music instruction at the university level is becoming increasingly viable due to improving potential for multimedia delivery and increasing internet accessibility for students. Traditionally, out-of-class access to music course content is limited to printed notes, handouts, and textbook materials. Out-of-class access may be extended to include recordings, a listening lab, or other practical resources, but even with such access,

beginning students without music training may frequently be unable to interpret the materials adequately. The Web offers a unique opportunity for teachers to extend instructional support and out-of-class access to music course materials through progressively disclosed multimedia presentations in an interactive hypermedia environment, with few limitations on time or location. Whether students can effectively transfer fundamental music skills and concepts from class activities to authentic music settings is a key question. Limited music education research efforts in this area have demonstrated that transfer of learning may or may not occur. Further, it is not clear from research whether active engagement in participatory performance activities is superior to practicing a conceptual task directly if such transfer is the goal.

Purpose of the Study

The purpose of this study was to provide a measure of the effectiveness and student opinions of varying types of web support and modes of in-class instruction on the ability of university level non-musicians to define, identify visually from printed musical excerpts, and identify aurally from recorded musical excerpts, the characteristics of musical texture, specifically within the context of a music fundamentals and methods course for undergraduate pre-service elementary education majors. Therefore, four important research questions drove this inquiry:

1. Given out-of-class access afforded by web-delivered instructional support materials, was there a difference in mastery of content and skill in musical texture, demonstrated through definition, visual, and aural identification, as measured by posttest responses among students who received access to varying types of multimedia web-support?

2. Given identical academic content and instructional sequence, was there a difference in mastery of content and skill in musical texture, demonstrated through definition, visual, and aural identification, as measured by posttest responses among students who received varying modes of in-class instruction?

3. Given identical academic content and instructional sequence, was there a difference in near and far transfer of learning in musical texture, demonstrated through aural identification, due to varying types of web support or varying modes of instruction?

4. Given identical academic content and instructional sequence, was there a difference in student attitude survey responses, due to varying types of web support or varying modes of instruction?

CHAPTER 2

METHOD

Subjects

Undergraduate students ($N = 58$) enrolled in three sections of a music fundamentals and methods course for undergraduate pre-service elementary education majors at Louisiana State University served as subjects. Group assignments reflected the subjects' registration in a particular section of the course based upon their personal scheduling requirements, and further, upon random assignment within each section. The subjects were unaware of any differences in instructors or experimental conditions among the sections prior to registration.

An analysis of the declared majors of students enrolled in the three sections of the course showed that 62.3% of students intended to major in Education. Also, 16.3% of students intended to major in Human Ecology, which included those studying Early Childhood Development. All students enrolled in the course were undergraduates, and typically, students who represented other majors expressed an interest in working with children.

In accordance with the requirements and approval provisions of the Louisiana State University Institutional Review Board (IRB) for Human Subject Studies, exemption from institutional oversight was sought and granted. Subjects were informed of the study procedures in writing, and gave written confirmation of their informed consent to participate in the

study by signing an IRB-approved consent form. Appendix A contains both the application for IRB exemption and the approved subject consent form.

Course Instructors

Each of the three established course sections, and subsequently, the six separate experimental groups, were taught by experienced instructors, each of whom had previously taught the course with demonstrated success. The three instructors included an associate professor of music education serving as faculty coordinator for the course, a master's degree candidate in music education with previous teaching experience, and the investigator, a doctoral candidate in music education, also with previous teaching experience.

The use of different instructors for the course sections and experimental groups was an imposed reality of the instructional setting which was unavoidable, and introduced the risk of a confounding effect. This effect, however, was controlled by the use of a pre-established content sequence, including pre-selected song activities and musical examples across sections. To establish a high degree of similarity and quality of instruction in each experimental group, class presentations were based entirely upon investigator-prepared materials.

Course Description

"MUS 2170: Music Education in the Elementary School," is a course intended for undergraduate students who are pre-service elementary

education majors. The class meets for fifty minutes, three times weekly, for one semester. Its objectives are to introduce and develop basic competencies in (a) the conceptual understanding of music, (b) music literacy and performance skills, and (c) music instructional strategies for elementary education. In each of the three sections, a common syllabus, course materials, instructional sequence, and similar instructional activities are used. A number of varied activities are employed to teach music instructional strategies including field observation, instructor modeling, peer teaching experience, video taped self-analysis, and task analysis. Basic music understanding and performance skills are also taught through varied methods including instructor presentation and modeling, use of musical examples, in-class practice experiences, and authentic performance tasks. All sections regularly meet in the same classroom, which is equipped with a piano, an audio system, dry erase boards, overhead projection equipment, resource materials for elementary music instruction, and classroom instruments.

Goals of the Experimental Unit

The musical concepts represented in MUS 2170 can be thought of in an organizational scheme defined by seven "Elements of Music," which include rhythm, melody, harmony, texture, timbre, dynamics, and form. This investigation was concerned with the development and implementation of a single instructional unit for the element of musical

texture, which fit as one augmented part of the normal course structure for instruction in all of the elements, as well as the overall course goals. The instructional activities for this unit and guidance for use of out-of-class web-delivered materials occurred during portions of six consecutive class meetings. During this time, texture unit material was the primary focus of instruction. The unit was scheduled to occur in the seventh and eighth weeks of the course to allow students to acclimate to the instructors and course protocols, and to allow unit evaluation to occur as a part of a mid-term assessment.

Texture involves the "thickness" of musical sound, and may be defined, in part, by the number and quality of the individual "musical voices" or unique musical lines that are present in a song. In the text utilized for the course, Integrating Music into the Elementary Curriculum, Anderson and Lawrence (1998) define the content for the element of texture in three conceptual categorizations: monophonic texture, or melody alone; homophonic texture, or melody with added chordal accompaniment; and polyphonic texture, or multiple melodies performed simultaneously. A fourth category, mixed texture, is characterized by multiple, simultaneous melodies with added chordal accompaniment. Implicit in these definitions is an additional understanding of the concepts of melody as sequentially played pitches, and chordal harmony as simultaneously played pitches. Although this represents a simple analysis

of musical texture, these definitions are appropriate for an introductory course. Table 1 shows a comprehensive list of the terms and their definitions as presented to students during instruction.

Specifically, expected instructional outcomes for the texture unit included:

1. A conceptual understanding of the presence of unique, independent musical voices.
2. A conceptual understanding of the quality of those voices as either sequential (melodic) or simultaneous (chordal).
3. The ability to visually and aurally identify the presence/absence of individual voices and their quality.
4. Knowledge of the specific terminology which is used to refer to the textural qualities.
5. Knowledge of the conventional names and characteristics of types of music in children's songs and standard music literature which use particular textural formats.

Experimental Design

The study was conducted according to a pretest/posttest design. Assignment of treatment conditions was dependent upon course section chosen by the students without knowledge of the experiment, and further, by random assignment within the course sections.

Table 1. Definitions of Texture Unit Terminology.

Term	Definition
Musical Texture	Musical texture is the element of music which describes the depth, nature, and relationship among different musical voices.
Musical Voice	A musical voice is an independent musical line which may be sung or played by one individual performer or by a group of performers.
Melody	A melody consists of a series of single pitches in succession. In a melody, there is a horizontal relationship among pitches.
Harmony	Harmony is characterized by pitches occurring simultaneously. When it is present, there is a vertical relationship among pitches.
Partner Song	Partner songs are independent melodies which can be performed together to produce harmony.
Descant/ Counter melody	A descant or counter melody is a melodic voice which is intended to be performed together with another melody to produce harmony.
Round/Canon	A round or canon is a melody which can be performed in independent musical voices, starting at different times, to produce harmony.
Ostinato	An ostinato is a short, repeating pattern (melodic, harmonic, rhythmic, or movement) which is intended to be performed together with a melody.
Imitation	Imitation is characterized by the regular occurrence of the same or similar melodic pitch patterns at different times in different voices.
Chord	A chord is a group of two or more pitches performed simultaneously.
Chordal Harmony	Chordal harmony is characterized by pitches occurring simultaneously and moving together with similar rhythm in a voice or group of voices. A clear vertical relationship is present among pitches.
Monophonic Texture	Monophonic texture consists of a single melody alone.
Polyphonic Texture	Polyphonic texture consists of several melodies performed together at the same time, resulting in harmony.
Homophonic Texture	Homophonic texture consists of a melody with chordal accompaniment, or chordal harmony alone.
Mixed Texture	Mixed texture consists of multiple melodic voices plus chordal harmony. Both vertical and horizontal relationships are present among notes in different voices.

Independent Variables

Independent variables consisted of three types of web support and two types of in-class instructional mode, resulting in six unique treatment conditions.

Type of Web Support. While all subjects had access to web support, the type and complexity of the web-based media content was varied according to three treatment conditions: text/graphics, text/graphics/audio, and progressive disclosure. The three web media conditions differed both in technical complexity and in the extent of sensory and cognitive involvement of the learner. Variations in audio and visual involvement in the web media presentation provided differing levels of instructional guidance.

Text/Graphics. The least technically complex web media condition contained static visual information only. Web support consisted of instructional narrative and interactive practice opportunities containing textual and visual content which included definitions, static graphic images, and printed scores for musical examples used in class.

Text/Graphics/Audio. This web media condition contained both auditory and static visual information. Web support consisted of those items present for the text/graphics condition, plus the added

option to listen to MIDI and recorded sound files which accompanied the static printed scores for all musical examples.

Progressive Disclosure. The most technically complex web media condition contained visually advancing graphics as well as auditory, and static visual information. Web support consisted of those items present for the text/graphics/audio condition, plus the added option to view real-time, progressively disclosed notation and graphic representations of the musical examples. These QuickTime multimedia representations included combinations of text, musical notation, and other graphic indications, occurring visually in time with the audio content.

In-Class Instructional Mode. This variable consisted of two treatment conditions—activities-experiential and listening—each represented by approximately one half of the subjects in each of the web-support groups, randomly assigned. Lesson content in both conditions remained constant, but instructional techniques and learner activities were varied to utilize either active student involvement (performance) or passive student involvement (listening).

Activities-Experiential. In-class instruction included singing and participating in appropriate songs and activities related to texture concepts. Songs and instructional activities were drawn from children's music literature and from the elementary basal music

series textbooks. Web-support for subjects in this condition incorporated musical examples selected from those presented in class.

Listening. In-class instruction included listening to musical excerpts related to texture concepts. Listening examples were drawn from standard music literature representing widely varied styles, genres, and performance media. Web-support for subjects in this condition incorporated musical examples selected from those presented in class.

Dependent Variables

Dependent variables consisted of content/skills mastery, near and far transfer of learning, use of web support materials, and student attitude.

Content/Skills Mastery. Mastery of the texture-related course content among students in the six experimental groups was measured by comparative pretest and posttest written responses to identical questions representing three components: (a) verbal definition, (b) identification of printed musical examples, and (c) identification of recorded listening examples.

Transfer of Learning. Students' ability to transfer analysis of texture-related concepts was measured by responses to additional posttest questions representing two components: (a) near transfer, represented by unfamiliar recorded musical examples which were similar in performance medium

and musical style to those used for instruction, and (b) far transfer, represented by unfamiliar recorded musical examples which were different in performance medium and musical style from those used for instruction. For the activities-experiential groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from children's song literature, while far transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard music literature. Conversely, for the listening groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard music literature, while far transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from children's song literature.

Use of Web Support Materials. Information regarding students' use of the web support materials corresponding to each lesson was collected by self-report on a written web use log, completed by each student, and supplemented by daily in-class written responses.

Student Attitude. Descriptive student responses regarding participatory experiences, in-class instruction, and web-support materials in the texture unit were sought on a written attitude survey, completed by each student, and supplemented by daily in-class written responses.

Experimental Procedures

Subjects in all course sections participated in a six-lesson unit in which the content and skills related to musical texture were introduced and drilled. The pretest occurred during the second and third weeks of the term (January 22 & 25, 1999) and posttest assessment occurred at the approximate midpoint of the term (March 10 & 12, 1999), following completion of the experimental unit. This unit was integrated within the normal structure of course instruction from February 24 through March 8, 1999. Each of the six texture unit lessons was designed to consist of at least one half of a 50-minute class period, with the remaining portion of each class period reserved for other course content not related to texture. Table 2 contains a complete calendar of events related to the experimental unit.

Students in each of the three course sections were given access to one of three types of web-support conditions—text/graphics, text/graphics/audio, or progressive disclosure. Each of the three course sections was further divided into two separate subgroups—one activities-experiential group, and one listening group. The instructional content and sequence for students under each of the six resulting experimental conditions was the same, as described below, however, the combinations of performance medium and musical style of examples/activities, and the type of web support differed. The experimental design is depicted in Figure 1. In-class presentations in all six subgroups were driven by

Table 2. Calendar of Events.

Date	Event
January 15	Student Information Sheet collected
January 22	Pretest I (definitions) and II (printed excerpts) given in class
January 25	Pretest III (listening) given in class
February 24	Lesson segment 1
February 26	Lesson segment 2, daily questions
March 1	Lesson segment 3, daily questions
March 3	Lesson segment 4, daily questions
March 5	Lesson segment 5, daily questions
March 8	Lesson segment 6, daily questions
March 10	Posttest I (definitions) and II (printed excerpts) given in class
March 10	Attitude Survey given in class
March 12	Posttest III (listening) and transfer test given in class
March 12	Web Use Log collected

investigator-prepared materials. In all course sections, the activities-experiential subgroups were taught by the investigator in order to maintain consistency of instruction. The listening subgroups were taught by the other two regular course instructors, using investigator-prepared materials.

Texture Unit Content and Sequence

In all six subgroups, the instructional content and sequence of the texture lessons remained consistent, despite the use of different musical selections and different types of web support. Texture content, drawn from

Experimental Design						
		Section 1	Section 2	Section 3		
P R E T E S T	Investigator	Text/ Graphics/ Audio	Progressive Disclosure	Text/ Graphics	P O S T T E S T	T R A N S F E R
		Activities	Activities	Activities		
		Teacher 1	Teacher 1	Teacher 2		
	Text/ Graphics/ Audio	Progressive Disclosure	Text/ Graphics			
	Listening	Listening	Listening			

Figure 1. Experimental Design.

the course text and the basal series elementary music texts, was combined and expanded by the investigator for the purpose of developing the instructional materials for each group. Six sequential lesson topics were developed including:

Lesson 1: Introduction to Musical Texture, Monophonic Texture

Lesson 2: Polyphonic Texture -- Partner Songs

Lesson 3: Polyphonic Texture -- Rounds, Melodic Ostinati, Imitation

Lesson 4: Homophonic Texture -- Chordal Harmony, Harmonic
Ostinati

Lesson 5: Pure Homophonic Texture, Mixed Texture

Lesson 6: All Textures, Review and Transfer

Appendix B outlines the content and sequence, objectives, and definitions of terms and concepts for each of the six in-class lesson presentations and corresponding web support materials for all groups.

The selection of song activities and listening examples for the texture unit was the result of an extensive examination, by the investigator, of materials for grades two through eight contained in two current basal music textbook series: Share the Music (Bond, et al., 1995), published by MacMillan/McGraw-Hill, and The Music Connection (Beethoven, et al., 1995), published by Silver Burdett Ginn. The printed and recorded song activities and listening excerpts from these series were examined (including but not limited to those materials intended specifically to teach texture concepts) and a listing of appropriate materials was compiled. All children's song activities used in the unit were adapted from or modeled after appropriate materials from the basal series. A majority of the listening excerpts used in the unit were also drawn from or suggested by the materials in the basal series, with additional excerpts taken from other sources when appropriate. Those listening excerpts were typically representative of standard Western music literature in a broad sense, demonstrating a wide variety of styles, genres, and performance media (including both vocal and instrumental music). Some examples of

non-Western musical styles were included as well. Appendix C lists the song activities and listening excerpts chosen for use in each of the six in-class lesson presentations, in the corresponding web support materials, and on the pretest/posttest instruments for all groups.

The extensive compilation of printed and recorded musical excerpts and figures assembled for use in the in-class presentations, web support materials, and pretest/posttest instruments contained a combination of public domain, copyright-protected, and original works. The sources of all musical selections are shown in Appendix C. In instances where copyrighted materials were incorporated into instructional resources, they were included under the fair use exemption of U.S. Copyright Law (United States Copyright Office, 1996) and are restricted from further use without permission. Copyright-protected excerpts used for in-class presentation adhered to the limitations set forth in the 1976 Guidelines for Educational Use of Music (United States Copyright Office, 1995). Copyright-protected excerpts included on the web support sites were prepared according to the time, portion, copying, and distribution limitations listed in Section 4 of the Fair Use Guidelines for Educational Multimedia (Consortium of College and University Media Centers, 1996), and were cited collectively on the web sites. A single copyright-protected excerpt, "Hanukah Is Here," by Suzanne Clayton, was included on the printed pretest/posttest instrument

and subsequently reprinted here by permission (see Appendix D for the author's permission statement).

In-Class Presentation Materials. In-class presentation materials developed by the investigator consisted of twelve sets of multiple overhead transparencies (six lessons, two instructional modes) as well as six sets of accompanying recorded excerpts on cassette tape for the listening groups. The in-class materials represented corresponding six-lesson sequences for both the activities-experiential and listening groups. An example of the overhead transparencies for one lesson in each of these two groups is contained in Appendix E. These materials included instructional narrative text, important points, text definitions, printed musical excerpts, and recordings when appropriate. The materials in each set of presentation transparencies followed the unit content and sequence as outlined in Appendix B and used printed and recorded musical examples as listed in Appendix C.

Web Support. A comprehensive set of six separate web sites, each consisting of six web-based tutorials and interactive practice activities developed by the investigator, were used by the subjects in this study. Each of the web sites was made up of approximately 100 individual web pages organized sequentially, and containing instructional narrative, text definitions, graphic images and/or printed scores for musical examples corresponding to the in-class presentations. Arranged by lesson content, the

materials in each web-based tutorial followed the content and sequence outlined in Appendix B and used printed, recorded, and MIDI musical examples as listed in Appendix C.

Each of the six lesson tutorials was followed by an interactive practice segment. The first five practice segments consisted of three multiple-choice questions which referred to an additional musical example. Upon hearing or viewing the example and choosing an answer, students were informed whether their choice was correct, and pointed to an appropriate page in the tutorial for optional review. The sixth practice segment contained interactive review questions for the definitions of terms from the entire unit, as well as links to the other five practice segments.

The tutorial and practice materials at each site were accessed from an opening "Main Page," which also provided access to an extensive help page, QuickTime instructions and a test file, instructor email links, and reference citations for the musical excerpts. Extensive navigational aids were present in the form of a "navigation options" box at the bottom of each page to guide students through the materials in sequence, or to allow students to move freely among and within tutorial segments.

The web materials were customized to correspond to each of the six different experimental groups, including: (a) activities-experiential excerpts with text/graphics web support, (b) activities-experiential excerpts with text/graphics/audio web support, (c) activities-experiential excerpts with

progressively disclosed multimedia web support, (d) listening excerpts with text/graphics web support, (e) listening excerpts with text/graphics/audio web support, and (f) listening excerpts with progressively disclosed multimedia web support. Students in each of the six subgroups received printed instructions containing a unique URL address allowing them to access the support materials corresponding to their instructional conditions. During the period of instruction, web support materials for each of the six lessons were made available to students on the web in a cumulative manner (on successive days corresponding to in-class instruction). This meant that students could access all the web materials for which in-class instruction had previously occurred, but could not access web materials in advance of in-class instruction.

An important aspect of the web materials was the considerable use of graphic representations, musical notation, and QuickTime multimedia. The most technically and visually complex type of multimedia support was represented by QuickTime files which combined recorded music and MIDI sounds with printed musical notation, text, and graphics, appearing in time with the music. Appendix F shows a representation of the progressively disclosed graphics for one such excerpt. Less complex multimedia support conditions were represented by notation-only and audio-accompanied notation. In all, fifty-two musical examples or figures were used. Three versions of each web excerpt were created: a notation-only version, an

audio-accompanied notation version, and a progressively disclosed multimedia version which capitalized on the interactive nature of the web medium by providing student-controlled access to authentic illustrations of the musical concepts using text, notation, and graphics. With the audio and progressive disclosure versions, students were able to exercise complete control over their experience with the musical examples, by choosing to start, stop, or repeat these media files. Appendix G shows printed examples of a single web excerpt in each of the three web conditions.

All the QuickTime multimedia files, sound files and web graphics were produced by the investigator on a Macintosh computer, using a series of commonly available software applications. First, the musical excerpts were entered, note by note, in "Finale," version 2.6.1 (Farrand, 1989), and subsequent screen captures of the musical notation were produced as PICT images using "Captivate," version 4.6 (Lempereur, 1996), a screen capture utility. The PICT files were then converted to GIF format for web use using "GraphicConverter," version 3.3.1 (Lemke, 1998) a shareware graphics utility, and also imported to draw documents in "Microsoft Works 4.0" (Microsoft Corporation, 1994), where graphics and text blocks were added to produce a progressive series of images for QuickTime animation. The original Finale files were then saved in standard MIDI format, in some cases edited to provide enhanced instrumentation and musical effects using "MidiGraphy," version 1.3.6 (Tonata, 1998), a shareware sequencer,

and finally converted to QuickTime audio files. For recorded excerpts, AIFF format audio files were recorded directly to the Macintosh hard drive from audio Compact Discs or cassette tapes using "SoundHack," version 0.8 (Erbe, 1998), a shareware audio file conversion utility, and subsequently converted to QuickTime audio files. Progressively disclosed QuickTime multimedia files were produced by copying and pasting the graphics-enhanced PICT images into the QuickTime audio files in sequence using "QuickTime 3.0 Pro" (Apple Computer, 1998). Appropriate file compression formats were employed for web use. The multimedia files, sound files, and web graphics were integrated within the text narrative on the appropriate web pages by referencing them as embedded objects in the HTML code. Web pages were primarily produced using "PageSpinner," version 2.0.1 (Aman, 1997), a shareware HTML editing application.

Instrumentation

Pretest/Posttest. The investigator-designed pretest/posttest instrument consisted of questions intended to assess student understanding of the concepts and terminology associated with the musical texture unit, demonstrated through definitions (see Appendix H), identification of printed musical examples (see Appendix I), and identification of recorded musical examples (see Appendix J). It was meant to assess the subjects' (a) ability to identify the presence of unique, independent musical voices in visual and aural examples, (b) ability to

identify the textural quality of visual and aural musical examples as either sequential (melodic) or simultaneous (chordal), and (c) knowledge of terminology and song formats related to texture.

For purposes of validity, the definition task included terminology which was drawn from texture unit content. Printed and listening excerpt test items also represented content from the instructional unit. Five multiple choice questions for each excerpt progressed from general to specific concepts and were consistent for all excerpts. Based on pilot data, it was determined that the use of musical excerpts from varying performance media could confound the pretest results; therefore, all pretest/posttest excerpts were vocal in nature for purposes of consistency. Pretest/posttest questions resembled the interactive practice questions contained in the web support materials.

The pretest was given during the second and third weeks of the course (January 22 & 25, 1999) and the posttest was given at the approximate mid-point in the course calendar, following completion of the texture unit instructional activities (March 10 & 12, 1999). Parts I and II of the pretest/posttest, consisting of terminology and printed excerpts, were given during one class period, and Part III, consisting of listening excerpts, was given during another class period.

Transfer Test. Concurrently and combined with the listening posttest (March 12, 1999) students were given an additional transfer listening test,

including items intended to measure ability to transfer analysis of texture-related concepts to nearly identical and distantly varied musical excerpts, not previously used in the lesson materials (see Appendix J). Subjects in all groups were asked questions identical to those on the pretest/posttest, but referring to six new listening excerpts — three drawn from children's song literature to represent monophonic, polyphonic, and homophonic textures, and three drawn from standard instrumental music literature to represent monophonic, polyphonic and homophonic textures. For the activities-experiential groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from children's song literature, while far transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard instrumental music literature. Conversely, for the listening groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard instrumental music literature, while far transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from children's song literature.

Daily Questions. At the start of each class meeting during the experimental unit (except the first), all students in attendance were asked to respond to a brief set of written questions which alternated daily between web-related and content-related topics (see Appendix K). These daily questions were intended to encourage students to view the web support

materials on a regular basis. They also provided informal feedback about the extent to which students had made use of the web materials and in what environment, specific difficulties they had encountered, and the level of content mastery they had achieved.

Web Use Log. In order to assess student use of the web-delivered instructional support materials, students were required to complete a self-reported, written log of their access to the course materials on-line (see Appendix L), including the date, time and length of each session, the specific lessons and practice exercises visited, and the point of web access for the session.

Attitude Survey. Concurrent with the texture unit posttest, students in all sections anonymously completed the same attitude survey instrument (see Appendix M), on which they were asked to evaluate the unit instructional activities, to assess their own level of understanding of the musical content they had learned regarding texture, and to express their attitudes about the web-support process and materials. This survey measured student-reported attitudes toward the above through the use of a series of five-level, Likert-type questions, including a neutral response option, as described by Boyle and Radocy (1987).

Student Information Sheet. During the first week of class meetings, students in all sections were required to submit a Student Information Sheet (see Appendix N) as part of the regular function of the course. This

information sheet functioned to provide demographic data including identification and contact information, grade classification, college major, prior experience with children, teaching, and music. Additionally, information regarding prior web and computer experience, and availability of World Wide Web access was gathered.

Data Collection and Analysis

Quantitative and descriptive data were obtained for each of the dependent variables using investigator-designed test instruments as described above. Pretest/posttest data and transfer test data were recorded for comparative statistical analysis. Student attitudes, use of web support materials, and demographic information including prior web experience and access, were recorded for descriptive purposes. Therefore, data collected for each of the six experimental subgroups included: (a) Pretest and Posttest responses, (b) Transfer Test responses, (c) Daily Question responses, (d) Web Use Log responses, (e) Attitude Survey responses, and (f) Student Information Sheet responses. Computer-assisted statistical analyses were accomplished through the use of the StatView 5.0 statistics package for the Macintosh (Caldarola, et al., 1998). Computer-assisted test item analyses were carried out with aid from the Louisiana State University Measurement and Evaluation Division, using a custom-designed mainframe application.

Equipment

For in-class instruction, each of the three course sections required two separate classrooms which accommodated ten students. One classroom setting was required to have audio equipment capable of playing musical excerpts recorded on cassette tape, while the other classroom setting was required to have classroom instruments including Orff xylophones and resonator bells. Both classroom settings also contained a piano for musical demonstration and accompaniment purposes, a dry-erase board or chalk board, and an overhead projector for visual presentations.

For delivery of the web-support materials, adequate student access to the World Wide Web, using computers with QuickTime and sound capabilities (multimedia speakers or headphones, and necessary hardware) was required. The LSU School of Music Computer Lab was available as a primary point of access for students, although access at other points on campus and at home was encouraged when practical. The LSU School of Music Computer Lab contained nine Power Macintosh Computers with direct internet access and sound capability. Students were able to use the lab during regularly scheduled, daily lab hours, when lab assistants were available to provide technical help.

CHAPTER 3

RESULTS

The purpose of this study was to provide a measure of the effectiveness and student opinions of varying types of web support and modes of in-class instruction on the ability of university level non-musicians to define and identify the characteristics of musical texture visually and aurally, specifically within the context of a music fundamentals and methods course for undergraduate pre-service elementary education majors. Subjects participated in a six-lesson unit on musical texture during which they were given access to one of three types of web support sites with instructional content (visual only, audio/visual, and progressive disclosure), and exposed to one of two modes of in-class instructional activities (singing and performing children's songs and activities, or listening to examples of standard musical literature). Analyses included score comparisons on three distinct pretest and posttest tasks (verbal definitions, texture identification from printed excerpts, and texture identification from recorded excerpts), near and far transfer of texture identification listening skills, time spent using web support materials, and post-treatment attitudes.

An initial N of 60 students, enrolled in three sections of a music fundamentals and methods course for undergraduate pre-service elementary education majors at Louisiana State University, served as

subjects. Section assignments resulted from course registration and scheduling by students. Students were unaware of any differences in instructors or conditions among the sections prior to registration. Two students did not complete the requirements for this project and were removed from the study, yielding a final N of 58. Each of the three course sections was divided in half by random assignment, resulting in six unique treatment groups: children's song activities with visual-only (text/graphics) web support (n = 10), children's song activities with audio and visual (text/graphics/audio) web support (n = 10), children's song activities with progressively disclosed multimedia web support (n = 9), standard literature listening excerpts with visual-only (text/graphics) web support (n = 10), standard literature listening excerpts with audio and visual (text/graphics/audio) web support (n = 9), and standard literature listening excerpts with progressively disclosed multimedia web support (n = 10).

Content/Skills Mastery

Pretest/Posttest

In order to determine whether mastery of texture content and skills was affected by type of web support or in-class instructional mode, results for three pretest and posttest tasks were examined—verbal definitions, texture identification from printed excerpts, and texture identification from recorded excerpts. The pretest/posttest instruments and answer keys can be found in Appendices H, I, and J. For each test, a Three-Way Analysis of

Variance (ANOVA) with Repeated Measures was calculated comparing type of web support (visual only, audio/visual, and progressive disclosure) and instructional mode (children's song activities and standard literature listening excerpts) across pretest and posttest responses.

Definitions. Definition pretest and posttest scores were derived from students' written responses to the Musical Texture Quiz, part I, which consisted of selected terms from the texture unit. The scores represented the number of correct responses out of 10 questions. Responses were considered correct only if all components of the definition presented during the experimental unit were present and correctly stated. Results of a Three-Way ANOVA with Repeated Measures comparing type of web support (visual only, audio/visual, and progressive disclosure) and instructional mode (children's song activities and standard literature listening excerpts) across definition pretest and posttest responses are displayed in Table 3. The main effect, type of web support, resulted in no significant difference [$F(2, 52) = .50, p > .05$]. Definition mean scores for the visual only web group ($M = 4.32$) and the progressive disclosure web group ($M = 4.26$) were similar and slightly higher than the audio/visual web group ($M = 3.95$), demonstrating no significant effect due to type of web support. The main effect, instructional mode, also resulted in no significant difference [$F(1, 52) = 1.37, p > .05$]. Definition mean scores for the children's song activities group ($M = 4.38$) and the standard literature listening group

Table 3. Three-Way Analysis of Variance with Repeated Measures: Type of Web Support and Instructional Mode by Definition Pretest/Posttest Responses.

Source	df	SS	MS	F	p
Between Subjects					
Type of Web Support	2	3.52	1.76	.50	.6124
Instructional Mode	1	4.89	4.89	1.37	.2463
Type of Web Support X Instructional Mode	2	.79	.40	.11	.8947
Subjects within group	52	184.92	3.56		
Within Subjects					
Definitions Pre-Post	1	1321.68	1321.68	412.01	<.0001
Definitions Pre-Post X Type of Web Support	2	.99	.49	.15	.8577
Definitions Pre-Post X Instructional Mode	1	.05	.05	.01	.9031
Definitions Pre-Post X Type of Web Support X Instructional Mode	2	4.25	2.12	.66	.5200
Subjects within group	52	166.81	3.21		

(\bar{M} = 3.98) were less than a half point apart, demonstrating no effect from in-class instructional mode. There was no two-way interaction between type of web support and instructional mode [$F(2, 52) = .11, p > .05$].

A significant difference among subjects across the main effect of pretest and posttest responses for definitions was found [$F(1, 52) = 412.01, p < .0001$]. This was an expected result based upon the assumption that the texture unit sequence of instructional activities would

be effective in raising posttest scores. Table 4 displays means, standard deviations, and standard errors for definition pretest and posttest responses. Students in all groups improved their definition scores from pretest ($\underline{M} = .79$) to posttest ($\underline{M} = 7.57$). A large standard deviation for pretest scores ($\underline{SD} = 1.02$) relative to the low definition pretest mean reflects overall disparity in texture pre-knowledge among subjects. There were no other significant two- or three-way interactions ($p > .05$). This showed that neither type of in-class activity, and no type of web support, was more or less effective than another at increasing students' posttest texture definition scores.

Printed Excerpts. Printed excerpt pretest and posttest scores were derived from students' written responses to the Musical Texture Quiz, part II, which consisted of six sets of five multiple choice questions with each set referring to an excerpt of printed musical notation. In this case, scores represented the number of correct responses out of 30 questions. Questions with more than one correct answer choice were counted as a correct response only if all correct answers were listed, as indicated in the

Table 4. Definition Pretest and Posttest Mean Scores.

	<u>M</u>	<u>SD</u>	<u>SE</u>
Definitions - Pretest	.79	1.02	.13
Definitions - Posttest	7.57	2.32	.30

instructions for those questions. Results of a Three-Way ANOVA with Repeated Measures comparing type of web support (visual only, audio/visual, and progressive disclosure) and instructional mode (children's song activities and standard literature listening excerpts) across printed excerpt pretest and posttest responses are displayed in Table 5. As with the definitions test, the audio/visual web group ($M = 16.58$) scored

Table 5. Three-Way Analysis of Variance with Repeated Measures: Type of Web Support and Instructional Mode by Printed Excerpt Pretest/Posttest Responses.

Source	df	SS	MS	F	p
Between Subjects					
Type of Web Support	2	25.08	12.54	.38	.6862
Instructional Mode	1	6.55	6.55	.20	.6581
Type of Web Support X Instructional Mode	2	24.19	12.09	.37	.6954
Subjects within group	52	1719.46	33.07		
Within Subjects					
Printed Excerpts Pre-Post	1	2467.28	2467.28	222.38	<.0001
Printed Excerpts Pre-Post X Type of Web Support	2	19.75	9.88	.89	.4167
Printed Excerpts Pre-Post X Instructional Mode	1	6.05	6.05	.55	.4635
Printed Excerpts Pre-Post X Type of Web Support X Instructional Mode	2	34.69	17.34	1.56	.2191
Subjects within group	52	576.93	11.09		

lower than the visual only web group ($\underline{M} = 17.65$) and the progressive disclosure web group ($\underline{M} = 17.29$), however, this difference was not significant due to type of web support [$F(2, 52) = .38, p > .05$]. The main effect, instructional mode, also resulted in no significant difference [$F(1, 52) = .20, p > .05$], with similar printed excerpt mean scores for the children's song activities group ($\underline{M} = 17.40$) and the standard literature listening group ($\underline{M} = 16.97$) demonstrating no effect from this treatment. There was no two-way interaction between type of web support and instructional mode [$F(2, 52) = .37, p > .05$].

As expected, a significant difference among subjects across the main effect of pretest and posttest responses for printed excerpts was found [$F(1, 52) = 222.38, p < .0001$], indicating improved scores in all groups from pretest ($\underline{M} = 12.53$) to posttest ($\underline{M} = 21.83$). Table 6 displays means, standard deviations, and standard errors for printed excerpt pretest and posttest responses. Just as with definitions, there were no other significant two- or three-way interactions ($p > .05$), showing that neither of the in-class instructional modes and none of the web support types was more or less

Table 6. Printed Excerpt Pretest and Posttest Mean Scores.

	<u>M</u>	<u>SD</u>	<u>SE</u>
Printed Excerpts - Pretest	12.53	4.88	.64
Printed Excerpts - Posttest	21.83	4.30	.56

effective than another at increasing students' printed excerpt posttest scores.

Listening Excerpts. Listening excerpt pretest and posttest scores were derived from students' written responses to the first half of Musical Texture Quiz, part III, which also consisted of six sets of five multiple choice questions with each set referring to a recorded musical excerpt. Scores represented the number of correct responses out of 30 questions. Questions with more than one correct answer choice were counted as a correct response only if all correct answers were listed, as indicated in the instructions for those questions. Results of a Three-Way ANOVA with Repeated Measures comparing type of web support (visual only, audio/visual, and progressive disclosure) and instructional mode (children's song activities and standard literature listening excerpts) across listening excerpt pretest and posttest responses are displayed in Table 7. The main effect, type of web support, resulted in no significant difference [$F(2, 52) = .21, p > .05$], with similar listening excerpt mean scores for the visual only web group ($M = 18.17$), the audio/visual web group ($M = 18.61$), and the progressive disclosure web group ($M = 18.76$) demonstrating no effect from this treatment. The main effect, instructional mode, also resulted in no significant difference [$F(1, 52) = .04, p > .05$], with similar listening excerpt mean scores for the children's song activities group ($M = 18.43$) and the standard literature listening group ($M = 18.59$)

Table 7. Three-Way Analysis of Variance with Repeated Measures: Type of Web Support and Instructional Mode by Listening Excerpt Pretest/Posttest Responses.

Source	df	SS	MS	F	p
Between Subjects					
Type of Web Support	2	6.61	3.30	.21	.8118
Instructional Mode	1	.59	.59	.04	.8477
Type of Web Support X Instructional Mode	2	20.77	10.38	.66	.5223
Subjects within group	52	820.81	15.78		
Within Subjects					
Listening Excerpts Pre-Post	1	522.52	522.52	91.53	<.0001
Listening Excerpts Pre-Post X Type of Web Support	2	.48	.24	.04	.9585
Listening Excerpts Pre-Post X Instructional Mode	1	13.95	13.95	2.44	.1241
Listening Excerpts Pre-Post X Type of Web Support X Instructional Mode	2	3.81	1.91	.33	.7175
Subjects within group	52	296.85	5.71		

demonstrating no effect from this treatment. There was no two-way interaction between type of web support and instructional mode [$F(2, 52) = .66, p > .05$].

Once again, a significant difference among subjects across the main effect of pretest and posttest responses for listening excerpts was found [$F(1, 52) = 91.53, p < .0001$], indicating improved scores in all groups from pretest ($M = 16.38$) to posttest ($M = 20.64$). Table 8 displays means, standard

Table 8. Listening Excerpt Pretest and Posttest Mean Scores.

	<u>M</u>	<u>SD</u>	<u>SE</u>
Listening Excerpts - Pretest	16.38	3.40	.45
Listening Excerpts - Posttest	20.64	2.98	.39

deviations, and standard errors for listening excerpt pretest and posttest responses. And again, no other significant two- or three-way interactions were found ($p > .05$). Neither of the in-class instructional modes and none of the web support types were more or less effective than another at increasing students' listening excerpt posttest scores.

Item Analysis. In order to investigate the relationships among types of texture and pretest/posttest question difficulty, two separate item analyses of subject responses were carried out—one for definitions and one for printed and listening identification tasks. Since no significant differences in pretest or posttest responses were found among treatment groups, response means representing all subjects ($N = 58$) were used. For the definitions task, mean percentages of definitions pretest and posttest correct responses for each of the ten individual terms were compared. Figure 2 depicts this comparison by term, showing dramatic overall post-treatment improvement by subjects on all terms. Interestingly, the definition for "round" was given correctly on the pretest by a higher percentage of students (18.97%) than any other term, but on the posttest by a lower percentage of students (65.52%) than any other term.

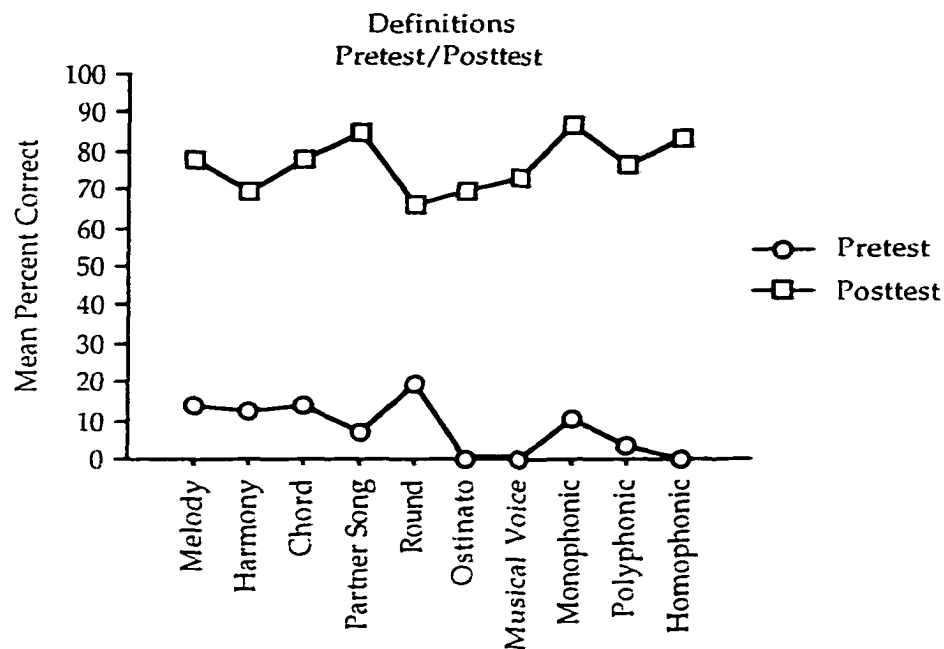


Figure 2. Item Analysis Plot: Definitions Pretest/Posttest Percentage of Correct Responses by Test and Question.

For the printed and listening tasks, each pretest and posttest consisted of a total of six sets of five identical multiple choice questions, with each set referring to a musical excerpt. Of the six excerpts on each test, two represented monophonic texture, two represented polyphonic texture, and two represented homophonic texture. By averaging the mean percentages of correct responses to the five individual questions grouped according to the texture of the excerpt, pretest and posttest responses were compared by texture type. Figure 3 shows the overall pretest to posttest improvement by texture, with each data point representing the mean percentage of correct responses for a total of 10 individual test questions (two sets of five questions for each texture). Overall post-treatment gain

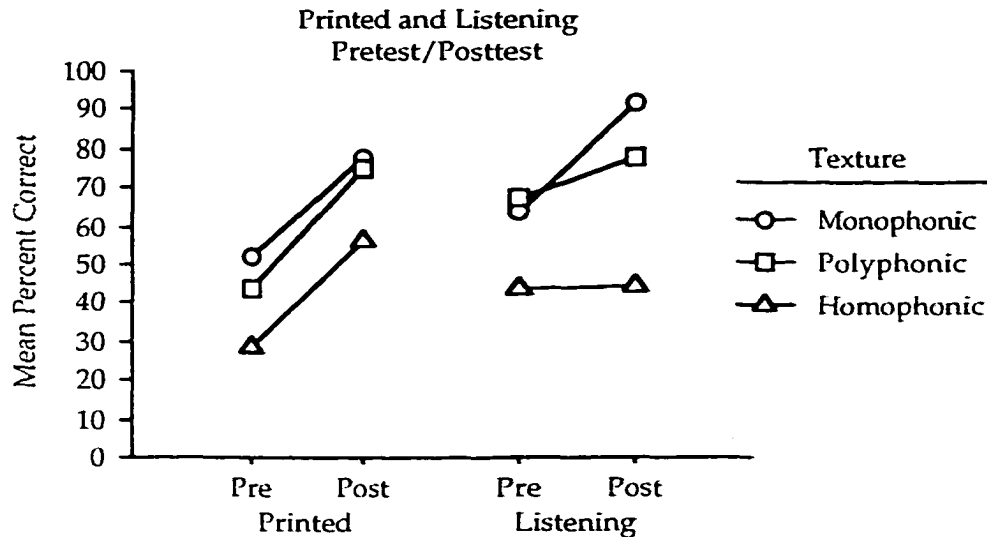


Figure 3. Item Analysis Plot: Printed and Listening Pretest/Posttest Percentage of Correct Responses by Texture.

was apparent for all textures, but for homophonic listening excerpts the gain was slight. Response means for polyphonic excerpts were similar but generally lower than for monophonic excerpts, and response means for homophonic excerpts were considerably lower than for the other textures.

Comparisons of the responses for specific questions by texture type are depicted for each printed and listening pretest and posttest in Figures 4 through 7. On these plots, each data point represents the mean percentage of correct responses for a total of two individual test questions (one question referring to each of two excerpts for each texture). Again, a general tendency for homophonic response means to be lower than monophonic and polyphonic response means was shown. This tendency was particularly well defined on the listening posttest (see Figure 7). Notably, response means for Question 3, which dealt with specific texture terminology,

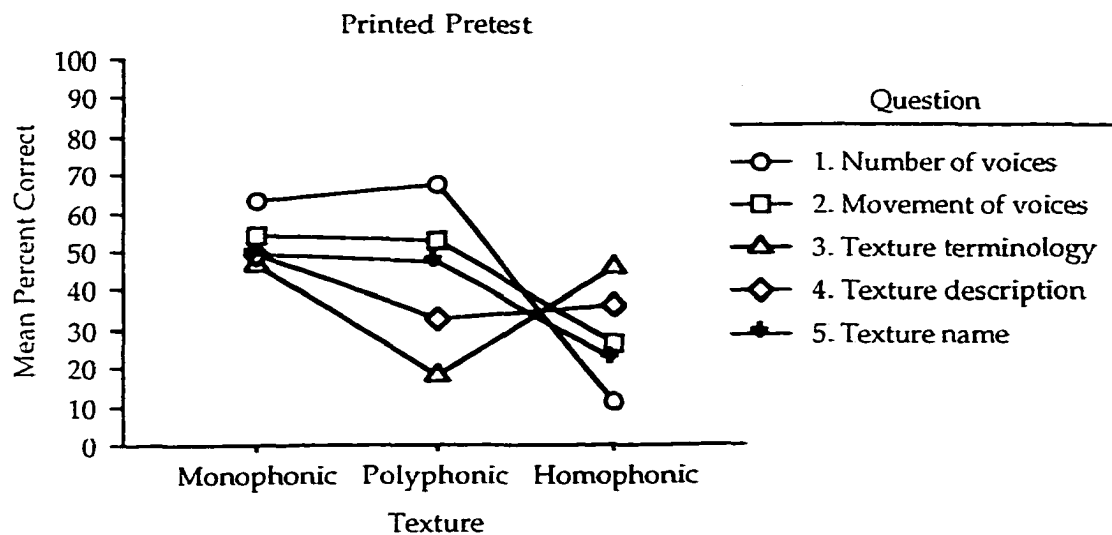


Figure 4. Item Analysis Plot: Printed Pretest Percentage of Correct Responses by Texture and Question.

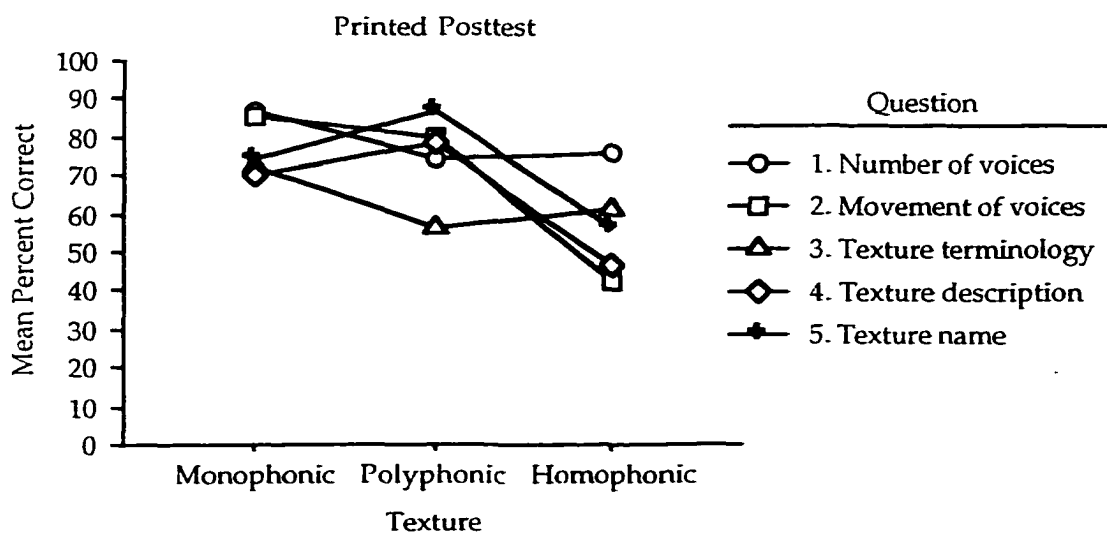


Figure 5. Item Analysis Plot: Printed Posttest Percentage of Correct Responses by Texture and Question.

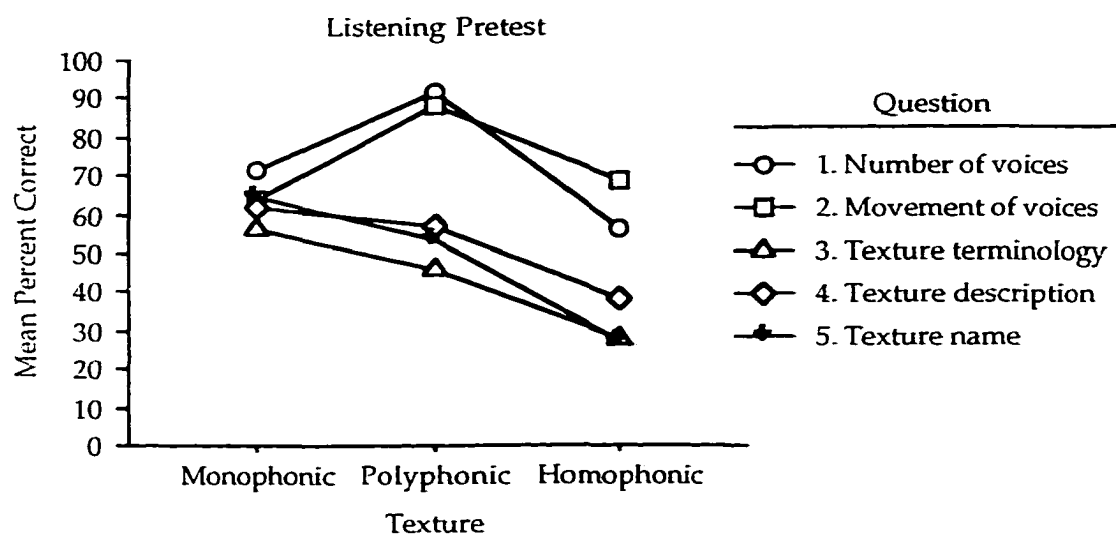


Figure 6. Item Analysis Plot: Listening Pretest Percentage of Correct Responses by Texture and Question.

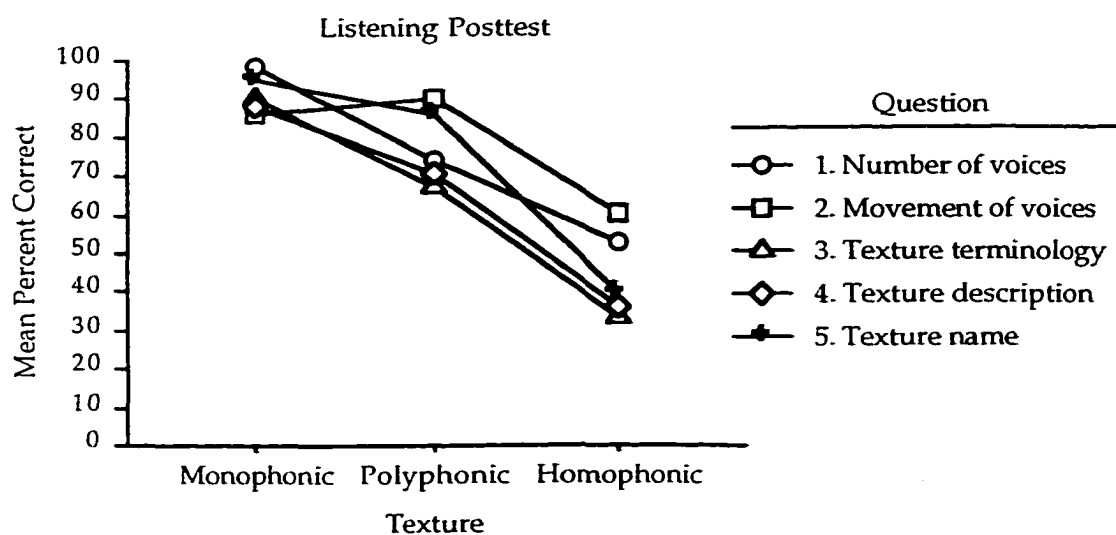


Figure 7. Item Analysis Plot: Listening Posttest Percentage of Correct Responses by Texture and Question.

tended to be comparatively low across all tests despite a high overall posttest response mean for the definition task (75.7%).

As shown in Figure 4, Question 1 pretest response means for printed homophonic excerpts were quite low. Figure 5, however, shows an appreciable Question 1 posttest gain, suggesting that instruction was particularly necessary in order for subjects to determine how many musical voices were present in printed homophonic excerpts. By contrast, Question 1 printed pretest response means for polyphonic excerpts were relatively high (see Figure 4), but very little improvement occurred on the posttest (see Figure 5), suggesting that instruction did not improve subjects' ability to determine how many musical voices were present in printed polyphonic excerpts.

With listening excerpts, instruction appeared to function differently for Question 1. Figure 6 shows that Question 1 pretest response means for polyphonic listening excerpts were high, while posttest response means dropped (see Figure 7). Question 1 pretest response means for homophonic listening excerpts dropped only slightly. Question 4 and 5 response means for homophonic listening excerpts (texture description and name) showed little posttest gain, and Question 2 (movement of voices) also dropped, suggesting that instruction was not effective for homophonic listening excerpts. Posttest listening response means for all questions did generally improve or remain unchanged for monophonic and homophonic excerpts.

Transfer of Learning

Transfer Test

To examine the effects of type of web support and in-class instructional mode on students' near and far transfer abilities in texture identification, a two-dimensional listening task was devised. Transfer test scores were derived from students' responses to questions seven through twelve of the Musical Texture Quiz, part III (post-treatment only), which can be found in Appendix J. The transfer test consisted of six sets of five multiple choice questions (the same as the printed and listening pretest/posttest questions) with each set referring to a recorded musical excerpt. Three of the six excerpts were similar in performance medium and musical style to those used for instruction (near transfer), and three excerpts were different in performance medium and musical style from those used for instruction (far transfer). All subjects were given the same transfer test. For the activities-experiential groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from children's song literature, while far transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard music literature. Conversely, for the listening groups, near transfer was measured by the ability to identify the texture of new, unfamiliar listening excerpts from standard music literature, while far transfer was measured by the ability to identify the texture of new,

unfamiliar listening excerpts from children's song literature. A near transfer and a far transfer score resulted, each representing the number of correct responses out of 15 questions.

Near and Far Transfer. Results of a Three-Way ANOVA with Repeated Measures comparing type of web support (visual only, audio/visual, and progressive disclosure) and instructional mode (children's song activities and standard literature listening excerpts) by transfer test responses (near and far) are displayed in Table 9. The main effect, type of web support, resulted in no significant difference [$F(2, 52) = .10, p > .05$]. Overall transfer task mean scores for the visual only web group ($M = 9.55$), the audio/visual web group ($M = 9.24$), and the progressive disclosure web group ($M = 9.39$) demonstrated no effect on transfer of texture identification skills due to type of web support. The main effect, instructional mode, also resulted in no significant difference [$F(1, 52) = 2.27, p > .05$]. The overall transfer task mean score for the children's song activities group ($M = 9.00$) was less than that for the standard literature listening group ($M = 9.79$), however, this difference was not significant, demonstrating no effect on transfer of texture identification skills due to in-class instructional mode. There was no two-way interaction between type of web support and instructional mode [$F(2, 52) = .31, p > .05$].

No significant difference among subjects resulted from the main effect of near and far transfer test responses [$F(1, 52) = 2.09, p > .05$]. Near

Table 9. Three-Way Analysis of Variance with Repeated Measures: Type of Web Support and Instructional Mode by Transfer (Near/Far).

Source	df	SS	MS	F	p
Between Subjects					
Type of Web Support	2	1.52	.76	.10	.9091
Instructional Mode	1	18.09	18.09	2.27	.1382
Type of Web Support X Instructional Mode	2	5.02	2.51	.31	.7315
Subjects within group	52	414.81	7.98		
Within Subjects					
Transfer (Near/Far)	1	7.18	7.18	2.09	.1543
Transfer (Near/Far) X Type of Web Support	2	17.14	8.57	2.49	.0923
Transfer (Near/Far) X Instructional Mode	1	56.25	56.25	16.37	.0002
Transfer (Near/Far) X Type of Web Support X Instructional Mode	2	7.74	3.87	1.13	.3319
Subjects within group	52	178.67	3.44		

transfer scores (\underline{M} = 9.64) and far transfer scores (\underline{M} = 9.16) were similar.

There was no significant interaction between transfer test response and type of web support [\underline{F} (2, 52) = 2.49, $p > .05$], however, a significant two-way interaction was found between transfer test response and in-class instructional mode [\underline{F} (1, 52) = 16.37, $p = .0002$]. Table 10 displays means, standard deviations, and standard errors for transfer test responses by instructional mode. As shown in Figure 8, these results indicated that

Table 10. Transfer Mean Scores: Transfer Type by Instructional Mode

Transfer Type	Song Activities Group			Listening Group		
	<u>M</u>	<u>SD</u>	<u>SE</u>	<u>M</u>	<u>SD</u>	<u>SE</u>
Near	8.55	2.49	.46	10.72	2.48	.46
Far	9.45	2.52	.47	8.86	1.92	.36

students in both treatment groups (children's song activities and standard literature listening excerpts) were better able to identify texture when listening to recordings of standard literature regardless of the performance medium and musical style of examples and song activities (instructional mode) used in-class. Subjects in the listening group scored nearly 2 points higher on their near transfer task—standard literature excerpts ($M = 10.72$),

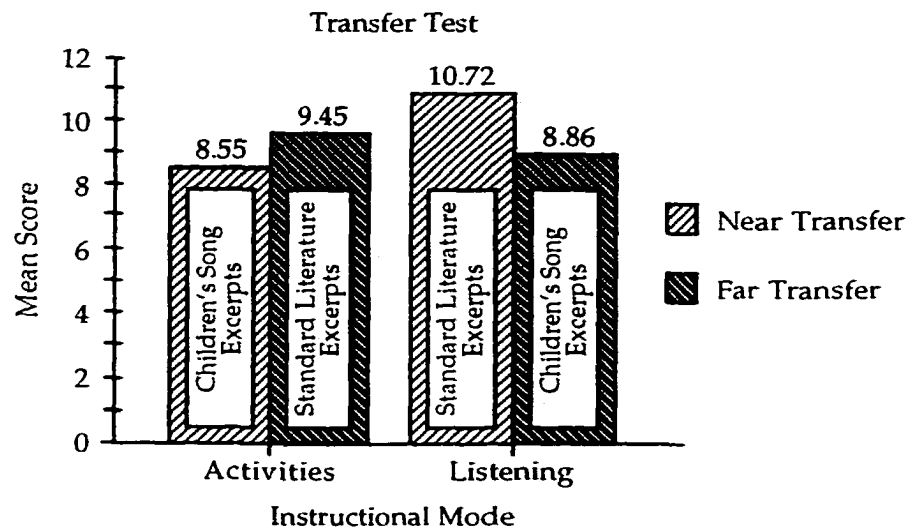


Figure 8. Interaction Bar Plot: Near and Far Transfer Means by Instructional Mode.

than on their far transfer task—children's song excerpts ($M = 8.96$). In contrast, subjects in the children's song activities group scored almost one point higher on their far transfer task—standard literature excerpts ($M = 9.45$), than on their near transfer task—children's song excerpts ($M = 8.55$). There was no significant 3-way interaction among transfer test response, type of web support, and instructional mode [$F(2, 52) = 1.127, p > .05$].

Use of Web Support Materials

Web Use Log

In order to assess student use of the web-delivered instructional support materials, subjects were required to complete a self-reported, written log of their access to the course materials on-line. The Web Use Log can be found in Appendix L. From this data, the total length of each subject's web use sessions was calculated, then rounded to the nearest 5 minute interval to produce a web time value in minutes. For purposes of comparison, pretest/posttest gain scores were also calculated for each subject's definition, printed, and listening tasks. Web support group and overall mean gain scores are displayed in Table 11, along with mean web time values. As self-reported data, web use time could not be considered a reliable or constant measurement. Additionally, time reports could not be normalized to account for differences in such things as system speed, internet connection rate, web congestion, software downloads, web support

Table 11. Pretest/Posttest Gain and Web Use Means by Type of Web Support

Web Support Group	n	Definition Gain Score (out of 10)	Printed Gain Score (out of 30)	Listening Gain Score (out of 30)	Web Time in Minutes
Visual Only	20	6.55	9.90	4.35	128.25
Audio/Visual	19	6.95	9.79	4.16	96.32
Progressive Disclosure	19	6.53	8.46	4.37	92.89
All Groups	58	6.67	9.29	4.29	106.21

media type, subject's familiarity with the web, and other unknown factors. For these reasons, web time was not included in an Analysis of Variance.

Pearson Product-Moment Correlations were calculated to compare web time with each of the pretest/posttest gain scores. No significant relationship existed between web time and definition gain ($r = -.09$, $p > .05$), web time and printed excerpt gain ($r = .11$, $p > .05$), or web time and listening excerpt gain ($r = -.01$, $p > .05$). While the measurement of time on line is not necessarily an accurate reflection of actual time on task, the absence of a relationship between self-reported web time and posttest gains suggests that in this study, increased use of the web support materials did not function to increase content mastery.

Student Attitude

Attitude Survey

Following the texture unit instructional sequence and concurrent with the posttest, students in all treatment groups anonymously completed an attitude survey on which they were asked to evaluate the unit instructional activities, to assess their own discrimination skills and knowledge of the musical texture content they had learned, and to express their attitudes about the web support process and materials. The Attitude Survey instrument can be found in Appendix M. Students answered 16 questions using a five-point, Likert-type scale, including a neutral response option, as described by Boyle and Radocy (1987). Response options were "strongly disagree," "somewhat disagree," "undecided," "somewhat agree," and "strongly agree." On those questions where it was appropriate, a "does not apply" option was also given. This was necessary since some questions addressed web-related concerns which, depending upon their experiences, some students may have been unable to answer.

For reporting purposes, responses were collapsed to form four categories. "Strongly disagree" and "somewhat disagree" responses were reported together as "disagree." "Strongly agree" and "somewhat agree" responses were reported together as "agree." "Undecided," and "does not apply" responses were reported separately. Results of the survey are summarized by question and treatment group in Table 12.

Table 12. Student Attitude Survey Results Expressed by Treatment Group

Question/Group	n	Disagree		Undecided		Agree		Doesn't Apply	
		(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Question 1 -- I feel I understand texture concepts and terminology better than I did before completing this unit.									
Visual Only, Activities	10	1	10.00	0	0	9	90.00	-	-
Visual Only, Listening	9	1	11.11	0	0	8	88.89	-	-
Audio/Visual, Activities	10	0	0	0	0	10	100.00	-	-
Audio/Visual, Listening	10	0	0	0	0	10	100.00	-	-
Progressive Disc., Activities	9	0	0	2	22.22	7	77.78	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	2	3.45	2	3.45	54	93.10	-	-
Question 2 -- I can identify the texture of a song when I see the printed music.									
Visual Only, Activities	10	0	0	0	0	10	100.00	-	-
Visual Only, Listening	9	0	0	0	0	9	100.00	-	-
Audio/Visual, Activities	10	0	0	1	10.00	9	90.00	-	-
Audio/Visual, Listening	10	0	0	0	0	10	100.00	-	-
Progressive Disc., Activities	9	1	11.11	3	33.33	5	55.56	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	1	1.72	4	6.90	53	91.38	-	-

(table continued)

Question 3 -- I can identify the texture of a song when I hear it performed.

Visual Only, Activities	10	0	0	2	20.00	8	80.00	-	-
Visual Only, Listening	9	3	33.33	3	33.33	3	33.33	-	-
Audio/Visual, Activities	10	0	0	2	20.00	8	80.00	-	-
Audio/Visual, Listening	10	1	10.00	2	20.00	7	70.00	-	-
Progressive Disc., Activities	9	4	44.44	1	11.11	4	44.44	-	-
Progressive Disc., Listening	10	0	0	2	20.00	8	80.00	-	-
All Groups	58	8	13.79	12	20.69	38	65.52	-	-

Question 4 -- The expectations for me to learn about musical texture were appropriate to the course.

Visual Only, Activities	10	0	0	0	0	10	100.00	-	-
Visual Only, Listening	9	2	22.22	4	44.44	3	33.33	-	-
Audio/Visual, Activities	10	0	0	0	0	10	100.00	-	-
Audio/Visual, Listening	10	1	10.00	0	0	9	90.00	-	-
Progressive Disc., Activities	9	1	11.11	0	0	8	88.89	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	4	6.90	4	6.90	50	86.21	-	-

Question 5 -- The in-class musical excerpts and activities helped me to understand texture better.

Visual Only, Activities	10	0	0	0	0	10	100.00	-	-
Visual Only, Listening	9	2	22.22	0	0	7	77.78	-	-
Audio/Visual, Activities	10	0	0	0	0	10	100.00	-	-
Audio/Visual, Listening	10	0	0	0	0	10	100.00	-	-
Progressive Disc., Activities	9	0	0	0	0	9	100.00	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	2	3.45	0	0	56	96.55	-	-

(table continued)

Question 6 -- The in-class musical excerpts and activities helped me to prepare for the Musical Texture Unit Quiz.

Visual Only, Activities	10	0	0	1	10.00	9	90.00	-	-
Visual Only, Listening	9	1	11.11	2	22.22	6	66.67	-	-
Audio/Visual, Activities	10	0	0	1	10.00	9	90.00	-	-
Audio/Visual, Listening	10	0	0	0	0	10	100.00	-	-
Progressive Disc., Activities	9	1	11.11	2	22.22	6	66.67	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	2	3.45	6	10.34	50	86.21	-	-

Question 7 -- The supporting materials on the web helped me to understand texture better.

Visual Only, Activities	10	0	0	1	10.00	9	90.00	0	0
Visual Only, Listening	9	0	0	2	22.22	7	77.78	0	0
Audio/Visual, Activities	10	0	0	0	0	10	100.00	0	0
Audio/Visual, Listening	10	2	20.00	1	10.00	7	70.00	0	0
Progressive Disc., Activities	9	3	33.33	1	11.11	3	33.33	2	22.22
Progressive Disc., Listening	10	0	0	2	20.00	8	80.00	0	0
All Groups	58	5	8.62	7	12.07	44	75.86	2	3.45

Question 8 -- The supporting materials on the web helped me to prepare for the Musical Texture Unit Quiz.

Visual Only, Activities	10	0	0	1	10.00	9	90.00	0	0
Visual Only, Listening	9	0	0	2	22.22	7	77.78	0	0
Audio/Visual, Activities	10	0	0	1	10.00	9	90.00	0	0
Audio/Visual, Listening	10	1	10.00	0	0	9	90.00	0	0
Progressive Disc., Activities	9	2	22.22	2	22.22	3	33.33	2	22.22
Progressive Disc., Listening	10	2	20.00	1	10.00	7	70.00	0	0
All Groups	58	5	8.62	7	12.07	44	75.86	2	3.45

(table continued)

Question 9 -- The supporting materials on the web were easier to understand than the in-class presentations.

Visual Only, Activities	10	5	50.00	3	30.00	1	10.00	1	10.00
Visual Only, Listening	9	5	55.56	2	22.22	2	22.22	0	0
Audio/Visual, Activities(a)	10	2	20.00	3	30.00	4	40.00	0	0
Audio/Visual, Listening	10	5	50.00	5	50.00	0	0	0	0
Progressive Disc., Activities	9	5	55.56	1	11.11	1	11.11	2	22.22
Progressive Disc., Listening	10	4	40.00	3	30.00	3	30.00	0	0
All Groups(a)	58	26	44.83	17	29.31	11	18.97	3	5.17

Question 10 -- The supporting web site was well-organized and easy to navigate.

Visual Only, Activities	10	0	0	0	0	10	100.00	0	0
Visual Only, Listening	9	0	0	0	0	9	100.00	0	0
Audio/Visual, Activities	10	0	0	0	0	10	100.00	0	0
Audio/Visual, Listening	10	1	10.00	0	0	9	90.00	0	0
Progressive Disc., Activities	9	3	33.33	1	11.11	3	33.33	2	22.22
Progressive Disc., Listening	10	0	0	0	0	10	100.00	0	0
All Groups	58	4	6.90	1	1.72	51	87.93	2	3.45

Question 11 -- I did not have to wait too long for musical examples to download on the web site.

Visual Only, Activities	10	0	0	1	10.00	9	90.00	0	0
Visual Only, Listening	9	1	11.11	0	0	8	88.89	0	0
Audio/Visual, Activities	10	0	0	0	0	9	90.00	1	10.00
Audio/Visual, Listening	10	2	20.00	1	10.00	7	70.00	0	0
Progressive Disc., Activities	9	5	55.56	1	11.11	2	22.22	1	11.11
Progressive Disc., Listening	10	8	80.00	0	0	2	20.00	0	0
All Groups	58	16	27.59	3	5.17	37	63.79	2	3.45

(table continued)

Question 12 -- I found it easy to gain internet access to the web support materials at school.

Visual Only, Activities	10	0	0	0	0	7	70.00	3	30.00
Visual Only, Listening	9	2	22.22	0	0	6	66.67	1	11.11
Audio/Visual, Activities	10	0	0	0	0	7	70.00	3	30.00
Audio/Visual, Listening	10	1	10.00	0	0	4	40.00	5	50.00
Progressive Disc., Activities	9	1	11.11	0	0	4	44.44	4	44.44
Progressive Disc., Listening	10	0	0	1	10.00	4	40.00	5	50.00
All Groups	58	4	6.90	1	1.72	32	55.17	21	36.21

Question 13 -- I found it easy to gain internet access to the web materials at a location other than school.

Visual Only, Activities	10	0	0	0	0	6	60.00	4	40.00
Visual Only, Listening	9	2	22.22	1	11.11	4	44.44	2	22.22
Audio/Visual, Activities	10	3	30.00	0	0	5	50.00	2	20.00
Audio/Visual, Listening	10	2	20.00	0	0	7	70.00	1	10.00
Progressive Disc., Activities	9	4	44.44	0	0	4	44.44	1	11.11
Progressive Disc., Listening	10	1	10.00	0	0	8	80.00	1	10.00
All Groups	58	12	20.69	1	1.72	34	58.62	11	18.97

Question 14 -- I felt prepared to use the web support site for this course.

Visual Only, Activities	10	1	10.00	1	10.00	8	80.00	-	-
Visual Only, Listening	9	0	0	0	0	9	100.00	-	-
Audio/Visual, Activities	10	1	10.00	0	0	9	90.00	-	-
Audio/Visual, Listening	10	1	10.00	0	0	9	90.00	-	-
Progressive Disc., Activities	9	1	11.11	1	11.11	7	77.78	-	-
Progressive Disc., Listening	10	0	0	0	0	10	100.00	-	-
All Groups	58	4	6.90	2	3.45	52	89.66	-	-

(table continued)

Question 15 -- I viewed all of the supporting materials on the web for each lesson on texture as often as I could.

Visual Only, Activities	10	3	30.00	0	0	7	70.00	-	-
Visual Only, Listening	9	3	33.33	1	11.11	5	55.56	-	-
Audio/Visual, Activities	10	3	30.00	0	0	7	70.00	-	-
Audio/Visual, Listening	10	2	20.00	1	10.00	7	70.00	-	-
Progressive Disc., Activities	9	4	44.44	1	11.11	4	44.44	-	-
Progressive Disc., Listening	10	2	20.00	1	10.00	7	70.00	-	-
All Groups	58	17	29.31	4	6.90	37	63.79	-	-

Question 16 -- I wish I had used the web support site for this course more than I did.

Visual Only, Activities	10	2	20.00	3	30.00	5	50.00	-	-
Visual Only, Listening	9	6	66.67	1	11.11	2	22.22	-	-
Audio/Visual, Activities	10	0	0	0	0	10	100.00	-	-
Audio/Visual, Listening	10	3	30.00	5	50.00	2	20.00	-	-
Progressive Disc., Activities	9	4	44.44	1	11.11	4	44.44	-	-
Progressive Disc., Listening	10	3	30.00	4	40.00	3	30.00	-	-
All Groups	58	18	31.03	14	24.14	26	44.83	-	-

(a) One student did not answer Question 9.

Most students (93.10%) felt that their understanding of texture concepts and terminology improved after completing the experimental unit. Of the 58 subjects, 53 (91.38%) expressed confidence that they could identify the texture of a song from printed music, while only 38 (65.52%) expressed confidence that they could identify the texture of a song when hearing it performed. This response trend was consistent across all six treatment groups, and presents a surprising contrast since pretest and posttest listening identification scores were, in general, higher than pretest and posttest printed identification scores. Most students (86.21%) felt that the expectations to learn about musical texture were appropriate to the course.

Students reported highly favorable attitudes toward the in-class musical excerpts and activities. Fifty-six students (96.55%) indicated that in-class excerpts and activities helped them to understand texture, while 50 students (86.21%) felt the excerpts and activities were helpful in preparing for the unit quiz (posttest). Reactions to the supporting web materials were slightly less favorable. Overall, 44 students (75.86%) indicated that the supporting web materials helped them to understand texture, and the same number felt the web materials were helpful in preparing for the unit quiz. In comparing the supporting web presentations to the in-class presentations, only 11 students (18.97%) found the web materials to be easier to understand than the in-class lessons, while 26 students (44.83%)

disagreed with this statement. Interestingly, none of the students in the audio/visual, song activities group responded that the web materials were easier to understand than the in-class presentations, yet nine students in this group (90.00%) responded in Question 8 that the supporting web site helped them to prepare for the unit quiz and in Question 10 that it was well organized and easy to navigate.

There was overwhelming agreement in five of the six subgroups that the web support sites were well-organized and easy to navigate. Overall, 51 students (87.93%) agreed with this statement. Eliminating the progressive disclosure, song activities group from this overall response total resulted in 48 "agree" responses for 49 students (97.99%). Only three of the nine students in the progressive disclosure, song activities group (33.33%) felt that the web support site was well organized, even though the web sites for all subgroups followed an identical organizational scheme.

Student responses regarding download time for musical examples on the web site varied expectedly, according to the complexity of the multimedia material presented to each group. For the least technically and visually complex web treatments (visual only and audio/visual), most students felt that they did not have to wait too long for downloads. As multimedia complexity (and file length) increased, however, this finding was reversed in direct relationship to the increasing complexity. Illustrating this, two students (20.00%) in the audio/visual, listening group, five

students (55.56%) in the progressive disclosure, song activities group, and eight students (80.00%) in the progressive disclosure, listening group, felt they had experienced excessive download times.

Regarding use of the web materials, 32 students (55.17%) reported that they found it easy to gain internet access to the web support materials at school, and 34 students (58.62%) reported that they found it easy to access the web materials from a location away from school. Importantly, 21 students (36.21%) selected "does not apply" in response to the school access question and 11 students (18.97%) selected "does not apply" in response to the home access question, suggesting that these students may not have attempted to access the web materials from these respective locations. Overall, 52 of the 58 students (89.66%) reported feeling prepared to use the web support site. While 37 students (63.79%) reported that they had viewed the web materials for each texture lesson as often as they felt they could, almost half (26 students, 44.83%) wished they had used the web support site more than they did.

Two treatment subgroups showed noticeable tendencies toward higher percentages of responses in the negative or neutral categories than other subgroups. In fact, the progressive disclosure, song activities group and the visual only, listening group together were responsible for the lowest percentage of "agree" responses on 12 of the 16 survey questions.

Coincidentally, these were the two subgroups which contained a final n of nine, while the remaining subgroups retained all ten subjects.

Both of these subgroups responded to Question 3 with particularly low confidence in their ability to identify texture by listening (although they showed listening pretest and posttest mean scores which were comparable to the other subgroups). The visual only, listening group expressed negative attitudes toward the texture unit. In this subgroup, only three students (33.33%) responded favorably to course expectations in Question 4, contrasting with high agreement in the other subgroups. Likewise, the only students who felt the in-class excerpts and activities did not help them to understand texture were two students in this subgroup. The progressive disclosure, song activities group was conspicuously negative regarding the supporting web materials, with only three students (33.33%) responding favorably to them in Questions 7, 8, and 10. In Questions 15 and 16, only four students in this subgroup (44.44%) responded that they had viewed the supporting materials as often as they could, but the same number indicated that they wished they had used the web support materials more than they did.

Demographic Information

Student Information Sheet

During the first week of class meetings, students in all sections were required to submit a Student Information Sheet which functioned to

provide demographic data including identification and contact information, grade classification, college major, and prior experience with children, teaching, and music. Additionally, information regarding prior web and computer experience, and availability of World Wide Web access was gathered. The Student Information Sheet can be found in Appendix N.

The self-reported levels of previous experience in the areas of course content varied dramatically among students. Across all three course sections, 98.28 % of the students reported some sort of experience with children, but only 50.00% of the students reported having had some sort of previous musical training or experience. With regard to prior computer and World Wide Web experience among students, 74.14% of students reported that already they had an e-mail account, 86.21% reported that they had access to a computer of their own, 70.69% reported that they had access to the World Wide Web at home, 44.83% reported that they had taken a class which required them to use the World Wide Web in some way, and 63.79% reported that they usually spent at least one hour accessing the World Wide Web each week.

CHAPTER 4

DISCUSSION

The necessity of instruction in music fundamentals for pre-service elementary education majors makes the study of effective teaching techniques in this area valuable. This study examined two important aspects of instruction—one in class and one out of class—which have the potential to affect music education broadly, and instruction in music fundamentals specifically. Use of the World Wide Web for authentic music instruction at the university level is becoming increasingly viable, and the effects of this local implementation of web-supported instruction in musical texture may have applications for other forms of web-supported music instruction as well. Likewise, the impact of song activities and listening experiences as tools to enable musical understanding is necessarily at the heart of music instructional theory.

This investigation dealt specifically with student mastery and transfer of skills, and student attitudes resulting from musical texture instruction for undergraduate non-music majors in an authentic setting. The effects of interactive web support consisting of three types of media (visual only, audio/visual, and progressively disclosed graphics and sound), and presentations using two instructional techniques (children's song activities and standard literature listening excerpts) were measured. Treatment occurred in three sections of an established music fundamentals

course for elementary education majors during a two-week unit. It must be stated that while the overall N of 58 subjects was representative of typical course enrollment for one semester, the resulting six experimental subgroups were small ($n = 9$ or 10). The short length of treatment and small sample size must be taken into account when considering the results.

Out-of-Class Web Support

In a traditional music fundamentals classroom setting, students may participate in a variety of in-class instructional activities, but leave class with primarily printed materials (text and music). Traditionally, out-of-class access may be extended to include recordings, a listening lab, or other practical resources. The Web offers a unique opportunity to extend out-of-class access to music course materials with few limitations on time or location. The first two types of web-support media developed for this investigation were meant to correspond with the settings described above (visual material only, and audio/visual material). The third type of web support was meant to capitalize on the multimedia capabilities of the Web by presenting progressively disclosed graphics and sounds which simulated in-class instructional activities. All three web support types incorporated interactive practice questions which were similar to the pretest and posttest tasks.

Since the intent of the web support materials was to provide out-of-class access with few limitations, students were encouraged to access the

supporting web sites either from the School of Music computer lab, where the computers had been prepared to access QuickTime media files, or from other campus or home locations, where students were responsible for testing and configuring the systems according to on-line instructions. Student responses to Questions 12 and 13 on the attitude survey suggested that students did, in fact, access the web sites from both school and home. By self report, only 21 students (36.21%) did not attempt to access the web sites from school, while only 11 students (18.97%) did not attempt to access the web sites from a location other than school.

Encouraging home access resulted in the need for certain limitations and adjustments during the development of web content. In order to maintain reasonably small file sizes and manageable download times for slower home internet connections, it was necessary for the recorded music excerpts used for the listening group sites to be very short—about 10 to 30 seconds. MIDI music excerpts, used primarily for the song activities group sites, were not subject to such length restrictions since MIDI files are comparatively small. Adding numerous graphic images to both recorded and MIDI sound files to create progressive disclosure also resulted in increased file size, however, meaning that there was a trade-off between longer musical excerpts and more complex graphics involvement. To accommodate this, shorter excerpts with faster visual graphic changes were employed early in the unit to provide frequent visual guidance. As the unit

progressed and texture content became more complex, longer excerpts with slower visual graphics changes were used on the assumption that students would improve their note-reading skills and require less measure-by-measure guidance.

While current high-end computer and internet connection technologies allow fast downloading of lengthy multimedia files, many installed home computers are not as fast. For three of the treatment subgroups (audio/visual-listening, progressive disclosure-activities, and progressive disclosure-listening) some web site pages contained QuickTime media files which were as large as 350K due to the complexity of the file content, despite appropriate file compression. Recorded sounds and numerous graphic images resulted in increased file length and download time. All of the multimedia files were tested to download in two minutes or less at off-peak hours on an 80 Mhz, 68040 Macintosh computer system with a 33.6K modem connection. While the School of Music lab computers were much faster than this, many student home computer systems were, perhaps, slower. This may have been confirmed by student responses to Question 11 on the attitude survey, for which 16 students (27.59%) reported having to wait too long for musical examples to download. As expected, 15 of these students were in the three treatment subgroups noted above.

Network congestion at peak hours also contributed to excessively long download times or failed downloads, even on school computers with

a direct internet connection (downloads sometimes failed due to internet congestion on a 233 Mhz Power Macintosh G3 with a T1 ethernet connection). Placing the web content on a university server connected locally rather than on a distant commercial server may have alleviated this. The inconsistency of downloading time and slow home computer systems, combined with the need to test, download, and install QuickTime software, presented frustrating technical issues for some students in the audio/visual and progressive disclosure groups who attempted to access the web materials from home. None of these issues applied to students in the visual only subgroups since their web sites did not include QuickTime files.

Self-reported data from students' Web Use Logs indicated that the mean total length of web use was highest for the visual only groups (128.25 minutes). The audio/visual groups used the web materials more (96.32 minutes) than the progressive disclosure groups (92.89 minutes). This may be another indication that slow downloads and technical problems discouraged some students, since students with the least technically complex web treatment spent the most time on the web. Either of the treatment groups which received sound files might have been expected to spend longer than the visual only group, simply due to the added length of time required to listen to those files.

There was no significant effect on content mastery associated with differences in any aspect of web use examined in this study. Although there were significant overall pretest to posttest improvements on the definition, printed excerpt, and listening excerpt texture identification tasks, these improvements did not vary by type of web media support. The finding that the progressively disclosed graphics condition did not function to increase understanding more than the visual or audio/visual conditions may be similar to findings by Nowaczyk, Santos, and Patton (1998). Their "limited animation graphics" condition was comparable to progressive disclosure in the present study since portions of the graphic images moved progressively across space and time to illustrate concepts. Nowaczyk, Santos, and Patton found no additional increase in student understanding resulting from limited animation graphics compared with static graphics in a large-group multimedia presentation for undergraduate psychology students, however, the factors of student access and control were not considered.

Although length of web use did vary slightly by web support condition (as described previously), there was no significant relationship between increased use of the web materials and posttest gain for any mastery task. While the measurement of time on line is not necessarily an accurate reflection of actual time on task, the absence of a relationship between self-reported web time and posttest gains suggested that increased

use of the web support materials did not function to increase content mastery under any of the support conditions.

It may be inappropriate to draw conclusions from these findings that the web support materials were ineffective as an instructional supplement. Indeed, the majority of students in all subgroups except progressive disclosure-song activities, and 75.86% overall, reported in Questions 7 and 8 of the attitude survey that the web materials helped them to understand texture better, and to prepare for the unit quiz (posttest). Dobb (1998) also found high approval for out-of-class use of commercial software (88%) and researcher-developed software (81%). Rather, these findings may be evidence that the web support materials were not fully utilized by students, or were not necessary as a supplement, due to the strength of the extensive in-class instructional activities and high level of teacher competence. .

The web materials and in-class presentations followed the same sequence and used common musical excerpts. Yet, overall, 26 students (44.83%) felt that the in-class presentations were easier to understand than the web materials while only 11 students (18.97%) felt that the web materials were easier to understand. The remaining 21 students (36.20%) had neutral opinions or no opinion. This may reflect a preference for teacher-guided instruction, or it may be due to the fact that many students had more experience with the in-class instruction than the web materials. Since in-class instruction always occurred first, students initially learned

the texture material in class. The in-class materials were carefully prepared and instruction was carried out by experienced teachers, so many students may be expected to have felt that they understood the content solely as a result of in-class instruction. This could have reduced students' desire to spend additional out-of-class time with the materials by accessing the web sites. In-class instruction also lasted longer than most students' combined web sessions, and students may have been more likely to actually engage in in-class instructional activities simply as a result of their presence in the classroom due to course attendance requirements. Finally it was apparent from the web use log, daily questions, and attitude survey results that some students were never fully successful in accessing the web materials to a useful extent. This was an unfortunate result of encouraging home access as well as the absence of an effective contingency for web use. When faced with failures at home, some students simply did not make the further effort to access the web materials at school, although many did.

Visual design appeal was not examined in this study, however it is another factor which may have affected use of the web materials by students. Although considerable efforts were made to present the web content in a clear and consistent manner with few extraneous features, progressive visual designs were sacrificed for technical simplicity. Web pages were presented in a linear manner as vertical browser documents. (See Appendix G.) They were made to resemble the corresponding in-class

presentation materials as much as possible, and as such, lacked visual appeal when compared with commercially designed web and multimedia instructional applications. It is reasonable to assume that if the web materials were designed to be visually engaging and to provide contrast with in-class instruction, students may have chosen to spend more time using them. The practical implication of this assumption is that teachers who wish to place course content on the web may benefit from advanced knowledge of visual design and web authoring techniques. However, as web authoring applications become more sophisticated, visually appealing design variations will become more easy to accomplish without technical training.

In-Class Instructional Mode

The in-class texture presentations for both the performance and listening instructional modes followed the same sequence, but differed in the use of singing/playing activities or musical excerpts. There was no significant effect on content mastery resulting from the participatory mode of musical examples used in class. Although there were significant overall pretest to posttest improvements on the definition, printed excerpt, and listening excerpt texture identification tasks, these improvements did not vary due to the use of children's song activities or standard literature listening excerpts as instructional examples. This finding would seem to imply that for adult non-musicians, unlike young children (Sims, 1991),

performance experiences and listening experiences are equally effective as illustrations of this fundamental musical concept. Perhaps this is because both performance and listening can facilitate conscious, purposeful comprehension for mature learners. Although difficult to assess, this may be related to previous findings by Mayer & Greeno (1972) who found no significant differences between active learning and passive reception.

The absence of a significant result on the printed excerpt texture identification task due to instructional mode was somewhat surprising since the activities-experiential presentations relied upon printed music to facilitate performance of all musical examples in class, while the listening group saw printed music less often. Additionally, the simple nature of children's song literature produced clearer visual notation images, like those printed musical excerpts chosen for the pretest/posttest. However, both groups did receive instruction using printed music in class and on the web support pages. Also, the use of rote teaching techniques (teacher modeling followed by class echoing) may have reduced dependence on the printed score for subjects in the activities group, while the absence of student performance may have encouraged subjects in the listening group to attend to the score. The presence and absence of interplay among visual and auditory stimuli (Shehan, 1987) may have counteracted any effect from active or passive involvement (Madsen & Geringer, 1983).

The absence of a significant result on the listening excerpt texture identification task due to instructional mode was much more unexpected since the activities-experiential in-class presentations never included recorded listening experiences, while the listening group presentations used recorded listening experiences exclusively, including instrumental selections. Listening excerpts on the web support pages also differed, with the activities group receiving only simple MIDI sounds and the listening group receiving mostly authentic recorded excerpts. Clearly, subjects in the activities-experiential group were able to transfer their texture identification skills and adapt them to recorded musical examples.

Content/Skills Mastery

Significant overall post-treatment improvement occurred on all three pretest/posttest tasks, indicating that the texture unit instructional activities were effective. Improvement was consistent among all treatment groups. Students demonstrated the greatest overall percentage gain on the definitions test (66.70%), the next highest overall percentage gain on the printed excerpt test (30.97%), and the lowest overall percentage gain on the listening excerpt test (14.30%). This trend was echoed in student responses to Questions 2 and 3 on the attitude survey, for which 53 students (91.38%) reported confidence in their ability to identify texture in printed excerpts, but only 38 students (65.52%) reported confidence in their ability to identify texture in listening excerpts. That perception was somewhat inaccurate

since printed posttest scores ($\underline{M} = 21.83$) and listening posttest scores ($\underline{M} = 20.64$) were actually quite similar across all groups, and listening pretest scores ($\underline{M} = 16.38$) were higher than printed pretest scores ($\underline{M} = 12.53$). Students' listening identification task performance was comparatively better than their self-reported expectations.

Although students demonstrated a relatively high overall posttest mean percentage for the definition task (75.7%), the item analysis showed that correct response means for the definitions question on the printed and listening tests (Question 3) tended to be comparatively low. In general, this may suggest that students had difficulty transferring their knowledge of specific texture terms to musical examples. More extensive instruction in terminology may have been required, as revealed by Cassidy and Speer (1990), however, this question was also the only one of the five uniform questions which required multiple correct answers when appropriate, and as a result, allowed more opportunities for incorrect responses than the other questions.

On the printed and listening pretests and posttests, there was a general tendency for questions referring to homophonic excerpts to be more difficult than polyphonic questions, and for questions referring to polyphonic excerpts to be more difficult than monophonic questions. Pretest to posttest improvement occurred for all textures on both tests, but the item analysis identified two interesting anomalies. First, overall

printed pretest and posttest response means to monophonic questions differed due to apparent confusion over octave scoring. Excerpt 3, "Oh, How Lovely is the Evening," was voiced in octaves (printed in closed score) and would have been correctly classified as monophonic texture with a single musical voice, for the purposes of the experimental unit. Correct response means for this set of questions improved on the posttest, but were much lower than response means for the straightforward monophonic Excerpt 5, "The Water is Wide." Similar difficulty was apparent for monophonic excerpts on the listening pretest and posttest. Response means for Excerpt 3, "Alleluia," sung by unison voices were lower than response means for Excerpt 5, "John O'Dreams," sung by a solo voice.

Second, overall correct response means for homophonic excerpts on both tests differed due to apparent confusion over the number of voices present in pure homophonic examples. Questions referring to printed and listening homophonic excerpts with melody plus chords were less confusing for students in this regard than questions referring to pure homophonic excerpts. Presumably, this confusion resulted from an inexact definition of the voice identification task for chordal excerpts during instruction. In practice, chordal voices may be interpreted differently according to context. While chords played on an instrument (especially keyboard instruments) may be thought of as a single musical voice, chords sung by a choir are generally thought of as of multiple musical voices. To a

novice, the two may be similar in sound and appearance. This depth of contextual understanding, although beyond the normal scope of course content, was nonetheless needed since this difficulty appeared to be responsible for lower correct response means for homophonic texture excerpts.

Transfer of Learning

An important result of this study was the significant interaction between transfer test response and instructional mode. Although there was no difference between near and far transfer mean scores, students in both the children's song activities and the standard literature listening groups were significantly better able to identify texture when listening to recordings of standard literature than recordings of children's song literature, regardless of the performance medium and musical style of examples and song activities used in class. This discounts the investigator's assumption that simple vocal music would present the clearest listening model for isolating the textural element. The standard literature excerpts on the texture test were instrumental in nature and distantly varied from the songs performed in class by the song activities group. Although both groups scored higher on standard literature transfer excerpts than children's songs, the listening group did score considerably higher ($\bar{M} = 10.72$) than the activities group ($\bar{M} = 9.45$), suggesting that the use of

standard literature listening excerpts during instruction did improve this transfer ability.

Student Attitude

Student attitudes and comments regarding the texture unit and web materials were generally positive, however there was an unexplained tendency for the attitude survey responses of two subgroups (visual only-listening and progressive disclosure-activities) to be less positive than those of the other subgroups. This was true of questions relating to the web support materials, in-class instruction, and the texture unit in general. Reasons for this are unclear since these groups had different web support conditions and instructional modes, as well as different instructors. Six students (66.67%) in the visual only-listening subgroup expressed uncertainty that the expectations to learn about musical texture were appropriate to the course, while only two students from the other five subgroups combined expressed this uncertainty. Additionally, these subgroups used the web materials less than the others, but it is unclear whether this was a result of their negative opinions or a cause of them. The progressive disclosure-activities subgroup demonstrated the highest pretest means but lowest gains on both the definitions and printed excerpt pretests. Only three students (33.33%) in this group reported that the web materials helped them to prepare for the unit quiz, suggesting that they failed to

anticipate the similarities between the web site practice questions and the quiz questions.

While attitude survey results revealed that attitudes toward the web support materials were less positive than attitudes toward the in-class presentation materials, the survey questions were too general to identify specific student concerns. Responses to the daily questions did provide more specific insights regarding students' opinions about the web support materials and the web use issues they faced. Many of the access and configuration difficulties which were expressed were outside the control of the investigator. Except for the important issues of home access and download time already discussed, feedback regarding the web support sites was, again, generally positive. Students in several subgroups made positive comments regarding the helpfulness of the interactive practice questions. Some students stated that they had printed the web pages for reference or used them to review for the test, however, one student expressed concern that having so much of the course content available on line would make it unnecessary to come to class. Another student pointed out that the answer links on the interactive quiz pages changed color to indicate "visited link" status, thereby giving hints to the correct answer after the first visit. The investigator later corrected this oversight.

Summary

Results of this study broadly indicated that while interactive multimedia web support for authentic instruction in the fundamentals of music is possible at the university level, there are issues of implementation which must be addressed in order to capitalize on its effectiveness for all students. At the time of this investigation, functional access to enabling QuickTime capabilities on computers outside the controlled environment of a school computer lab was not viable for many students, and consistent downloading of large multimedia files could not be guaranteed. There was no statistically significant effect on content mastery as a result of access to varying types of multimedia web support, nor was there a significant relationship between increased use of web materials and increased content mastery.

Results also indicated that participatory musical experiences, including singing and playing simple children's songs, were as effective as standard literature listening experiences for the purpose of illustrating musical texture concepts. There was no statistically significant effect on content mastery as a result of varying modes of in-class instruction. Regardless of the performance medium and musical style of the excerpts used for instruction, students were better able to transfer their texture identification skills to unfamiliar listening excerpts of standard music literature rather than children's song literature. Students' self-assessment

of their ability to identify texture from recorded listening excerpts was low in comparison to their actual ability. Additionally, there was confusion in identifying the number of musical voices in printed and recorded homophonic texture excerpts.

Implications for Practice

Providing out-of-class web access to authentic music content did appear to be practical and helpful in this investigation despite issues of implementation and home computer compatibility. In general, student use of web support materials may be greater when those materials offer content and practice opportunities which exceed in-class instruction or are presented in a unique way. Interactive web materials which take advantage of hypermedia design potential and advancing web-based multimedia technology may be more useful to students than web materials which simply offer linear review and practice. This may be most true when student perception of in-class instruction is already strong. Importantly, results of this study suggest that technically complex web offerings will have little impact if students are unprepared or unable to gain access to them with ease.

This study offers evidence to support the use of both participatory and listening experiences in texture instruction. With university non-musicians, both appeared to function well for illustrative purposes. Well structured performance activities and listening experiences may be

designed to be actively engaging for students at this level. Use of both children's songs and standard literature excerpts was also supported, although students showed a greater ability to transfer texture skills to standard literature than to children's songs.

Recommendations for Future Research

Certainly, web-delivered music instructional support has a place in the university classroom setting. Although the web support media aspect of this investigation yielded no significant results, improved implementation of the supporting web materials may change this in future studies. The lack of controlled student web use made it difficult to draw conclusions about the impact of the web materials in relationship to in-class instruction. In future studies, supporting web materials may need to offer opportunities beyond in-class content, such as more extensive interactive quiz activities and simulations. In authentic classroom settings, contingencies may be required to ensure student use. As older home computers are replaced and internet multimedia file formats continue to be standardized, the difficulties experienced here with home access and download time may become less restrictive, but in this study, these issues reduced the impact of the web support sites. Additionally, this study may open the door for future research exploring the function of classroom performance and listening activities, as well as children's songs and standard music literature as illustrative tools for adult non-musicians. Such studies might examine the

results found here with regard to other fundamental music concepts,
perhaps incorporating listening maps and other visual material.

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APPENDIX A

APPLICATION FOR EXEMPTION FROM INSTITUTIONAL OVERSIGHT AND SUBJECT CONSENT FORM

HSSC accession #: _____

LSU Proposal #: _____

LSU Office of Sponsored Research/OSR

388-1492; FAX 6792

117 David Boyd Hall

LSU: HUMAN RESEARCH SUBJECTS

APPLICATION FOR EXEMPTION FROM INSTITUTIONAL OVERSIGHT

Unless they are formally qualified as meeting the criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples or data obtained from humans, directly or indirectly, with or without their consent, must be approved in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

NOTE: Even when exempted, the researcher is required to exercise prudence in protecting the interests of research subjects, obtain informed consent if appropriate, and must conform to the Ethical Principles and Guidelines for the Protection of Human Subjects (Belmont Report) and LSU Guide to Informed Consent; (Available from OSR or <http://www.osr.lsu.edu/osr/comply.html>)

Instructions: Complete checklist, pp 2-4; if exemption appears possible, see instructions on p. 4. Otherwise apply to the IRB.

Principal Investigator Kenneth L. Liske Student? Y/N

Department/Unit Music Education Ph: 334-2891

Project Title The Effects of Web-Supported Instruction on the Knowledge and Discrimination of Musical Texture among Undergraduate Elementary Education Majors

Agency expected to fund project none (dissertation)

Subject pool (eg. Psychology students) LSU MUS 2170 students

Circle any "vulnerable populations" to be used: (children <18; the mentally impaired, pregnant women, the aged, other). Projects with incarcerated persons cannot be exempted.

I certify my responses are accurate and complete. If the project scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted.

PI Signature Kenneth L. Liske Date 1/6/99 (no per signatures)

Screening Committee Action: Exempted ☒ Not Exempted ☐

Reviewer Peta Munro Signature Peta Munro Date 2/24/99

Comments _____

cc PI (signed face page only); OSR Director (application with protocol) 117 David Boyd Hall, LSU.

Help available from Vicki Bernard 388-1492; vickyb@lsu.edu

Part A: DETERMINATION OF "RESEARCH" and POTENTIAL FOR RISK

This section determines whether the project meets the Department of Health and Human Services definition of "research" and if not, whether it nevertheless presents more than "minimal risk" to humans that makes IRB review prudent and necessary.

1. Is the project a systematic investigation designed to develop or contribute to generalizable knowledge?

(Note "systematic investigation" includes "research development, testing and evaluation"; therefore some instructional development and service programs will include a "research" component).

YES XX Go to Part B: Project constitutes research

NO _____ Go to 2

2. Does the project present physical, psychological, social or legal risks to the participants reasonably expected to exceed those risks normally experienced in daily life or in routine diagnostic physical or psychological examination or testing? You must consider the consequences if individual data inadvertently become public.

YES _____ Check C2 and stop here: IRB review required

NO _____ Check C1: Apply for exemption from IRB oversight

Part B: EXEMPTION CRITERIA FOR RESEARCH PROJECTS

This Part establishes whether the project is confined to research activities that may be exempted from IRB oversight.

Please answer each question 1-5; although a single exemption criterion may be sufficient to exempt a project, some projects contain several elements that may be met by different criteria.

1. Is this research conducted in established or commonly accepted educational settings, AND does the research involve normal educational practices (e.g. research on regular and special education strategies or research on the effectiveness of, or comparison among instructional techniques, curricula or classroom management methods)? (NOT exempt, merely because conducted at LSU)

YES XX Check C1 & go to 2: This exemption criterion is satisfied

NO _____ Go to 2: This exemption criterion is not applicable

2. Will this research use educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior?

YES XX Go to 2.1

NO _____ Skip to 3: (Criterion not applicable)

2.1 Will minors (<18y) be subjects AND does this research use survey procedures, interview procedures, or observation of public behavior in which the observer participates?

YES_____ Check C2, and skip to 3: IRB review probably required

NO XX Go to 2.2

2.2 Is the information recorded in such a manner that human subjects can be identified directly, or indirectly through identifiers (such as a code) linked to the subjects?

YES XX Go to 2.3

NO_____ Skip to 3: This exemption criterion is satisfied

2.3 Will any inadvertant disclosure of individual human subjects' responses have the potential to place the subjects at risk of criminal and civil liability, or be damaging to the subjects' financial standing, employability or reputation?

(The collection of sensitive data regarding the subjects' (or relatives' or associates') possible substance abuse, sexuality, criminal history or intent, medical or psychological condition, financial status, or similarly compromising information are examples of instances which will require an answer of YES):

YES_____ Go to 2.4

NO XX Skip to 3: This exemption criterion is satisfied

2.4 Are the human subjects elected or appointed public officials or candidates for public office?

YES_____ Check C1, go to 3: Exemption criterion satisfied

NO_____ Check C2 and go to 3: IRB review probably required

3. Does this research involve the collection or study of existing* data, documents, records, pathological or diagnostic specimens? (*"existing" implies a retrospective study)

YES_____ Go to 3.1

NO YY Skip to 4: (Criterion not applicable)

3.1 Is this material or information publicly available, or will it be recorded in such a manner by the investigator that the subjects cannot be identified directly, or indirectly through identifiers linked to the subjects?

YES_____ Check C1 & go to 4: Exemption criterion satisfied

NO_____ Check C2 & go to 4: IRB review probably required.

4. Is this a taste or food evaluation or food acceptance study?

YES____ Go to 4.1

NO XX Skip to 5: (criterion not applicable)

4.1 Will only wholesome foods without additives be consumed?
OR any food ingredients (including additives) consumed will be demonstrably at or below the level, and for a use found to be safe; are agricultural chemicals or environmental contaminants demonstrably at or below the level found to be safe by the Food and Drug Administration or approved by the Environmental Protection Agency or the USDA Food Safety and Inspection Service?

YES ____ Check C1 & Go to 5: Exemption criterion satisfied

NO, or unsure____ Check C2 & go to 5: IRB review may be required

5. Does the project include ANY research activity with human subjects not exempted under one or more of the above criteria?

YES____ Check C2: IRB review required

NO XX Check C1; Go to Part C and proceed accordingly

Part C: PRELIMINARY EVALUATION of EXEMPT STATUS by Investigator:

C1 XX C2 ____ If C1, or C1 AND C2 are checked, seek an exemption. If only C2 is checked, IRB review is required: obtain instructions from Sponsored Research or Web address on p 1.

Exemption Applicant: Send 2 copies of completed form, a brief project protocol (adequate to evaluate risks to subjects and to explain your responses to Parts A & B), instruments, and the consent form to ONE member in the most closely related department/discipline or to IRB office.

HUMAN SUBJECTS SCREENING COMMITTEE MEMBERS:

COLLEGE OF ARTS AND SCIENCES:	MASS COMMUN/SOC WK/AG:
Dr. Baumeister* (Psych) 388-4663	Dr. Nelson (Mass C) 388-6686
Dr. Williamson* (Psych) 388-1494	Dr. Archambeault (Soc Wk) 8-1374
Dr. Geiselman* (Psych) 763-2695	Dr. Kim (Soc Wk) 388-1109
Dr. Deseran (Socio) 388-1113	Dr. Rose (Soc Wk) 388-1015
Dr. Honeycutt (Speech) 388-6676	Dr. Biswas (Marketing) 388-8818
Dr. Dixit (Comm Sc./Dis) 388-3938	Dr. Bedeian (Mgmt) 388-6141
	Dr. Keenan* (Hum Ecol) 388-1708
ED/LIBRARIES/INFO SCI	Dr. Belleau (Hum Ecol) 388-1535
Dr. Kleiner (Middleton) 388-4016	
Dr. Taylor (Admin&Fnd) 388-2193	Dr. Munro* (Curric & I) 388-2352
Dr. Saia (Lab Sch) 388-3221	Dr. Wandersee (Curric) 388-2348
Dr. Landin* (Kinesiol) 388-2036	Dr. Paskoff (Lib/Sci) 388-1480

(* = IRB member)

irbexem.txt(09/25/98)

Consent Form

1. Study Title: **The Effects of Type of Web-Support and Instructional Mode on the Knowledge and Discrimination of Musical Texture among Undergraduate Elementary Education Majors**

2. Performance Site: **Louisiana State University and Agricultural and Mechanical College**

3. Investigators: **The following investigators are available to answer questions about this study:**

 Mr. Ken Liske (225) 334-2891
 Dr. Jane Cassidy (225) 388-3258

4. Purpose of the Study: **The purpose of this research project is to investigate the impact of access to varying types of out-of-class web support materials, as well as in-class instructional modes, on the musical texture content mastery and attitudes of undergraduate non-music majors.**

5. Subject Inclusion: **Undergraduate students enrolled three sections of "MUS 2170: Music in the Elementary School," at Louisiana State University during Spring Semester, 1999**

6. Number of Subjects: **58**

7. Study Procedures: **Subjects will participate in six, 20-minute instructional segments dealing with musical texture as a regular part of the course. They will also be required to access six corresponding components of a supporting instructional web site during out-of-class sessions. Musical texture pretests and posttests will be administered, and subjects will be asked to provide demographic information, to log their use of the web-support site, and to answer an attitude survey.**

8. Benefits: **The study may yield valuable information about the implementation of web-support for music instruction, and effective ways to teach the concepts of musical texture.**

9. Risks: **There are no anticipated risks for participants.**

Consent Form

10. Right to Refuse: Subjects may choose not to participate, or to withdraw from the study at any time without penalty or loss of any benefit to which they might otherwise be entitled. Refusal to participate in the study will not exempt students from instructional activities associated with the course.
11. Privacy: Results of the study may be published, but no names or identifying information will be included in the publication. Subject identity will remain confidential unless disclosure is required by law.
12. Signatures: The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Charles E. Graham, Institutional Review Board, (225) 388-1492. I agree to participate in the study described above and acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Signature of Subject: _____

Date of Signature: _____

APPENDIX B

TEXTURE UNIT CONTENT AND SEQUENCE

Lesson Segment 1: Introduction to Musical Texture, Monophonic Texture

Date: February 24, 1999

Requisite Concepts:

Musical Texture, Musical Voice, Melody, and Monophonic Texture.

Definitions:

Texture is the element of music which describes the depth, nature, and relationship among different musical voices.

A **Musical Voice** is an independent musical line which may be sung or played by one individual performer or by a group of performers.

A **Melody** consists of a series of single pitches in succession; in a melodic voice there is a horizontal relationship among pitches.

Monophonic Texture consists of a single melody alone.

Objectives:

Students will define and identify simple visual/aural examples of Musical Texture, Independent Voices, Melody, and Monophonic Texture.

Students will participate in singing/listening activities which demonstrate Melody, and Monophonic Texture.

Lesson Segment 2: Polyphonic Texture -- Partner Songs

Date: February 26, 1999

Requisite Concepts:

Harmony, Polyphonic Texture (independent voices/counterpoint), Partner Songs, Descant/Counter melody, and Monophonic vs. Polyphonic textures.

Definitions:

Harmony is characterized by pitches occurring simultaneously; when harmony is present there is a vertical relationship among pitches.

Polyphonic Texture consists of several melodies performed together at the same time, resulting in harmony.

Partner Songs are independent melodies which can be performed together to produce harmony.

A **Descant** or a **Counter melody** is a melodic voice which is intended to be performed together with another melody to produce harmony.

Objectives:

- Students will define and identify visual/aural examples of Harmony, Polyphonic Texture (independent voices/counterpoint), Partner Songs, and Descants/Counter melodies.
- Students will participate in singing/listening activities which demonstrate Harmony, Polyphonic Texture (independent voices/counterpoint), Partner Songs, and Descants/Counter melodies.
- Students will participate in singing/listening activities which compare and contrast Monophonic vs. Polyphonic textures.

Lesson Segment 3: Polyphonic Texture -- Rounds, Melodic Ostinati, Imitation

Date: March 1, 1999

Requisite Concepts:

- Polyphonic Texture (rounds, imitation), Rounds, Canons, and Melodic Ostinati.

Definitions:

- Rounds** and **Canons** are melodies which can be performed together by independent voices starting at different times to produce harmony.
- A **Melodic Ostinato** is a short, repeated melody pattern which is intended to be performed together with another melody to produce harmony.
- Imitation** is characterized by the regular occurrence of the same or similar melodic pitch patterns at different times in different voices.

Objectives:

- Students will define and identify visual/aural examples of Polyphonic Texture, Rounds/Canons, Imitation and Melodic Ostinati.
- Students will participate in singing/listening and classroom instrument activities which demonstrate Polyphonic Texture, Rounds/Canons, Imitation, and Melodic Ostinati

Lesson Segment 4: Homophonic Texture -- Chordal Harmony, Harmonic Ostinati

Date: March 3, 1999

Requisite Concepts:

- Chordal Harmony, Chord, Homophonic Texture (melody plus chords in independent voices), and Harmonic Ostinati.

Definitions:

- A **Chord** is a group of pitches performed simultaneously.

Chordal Harmony is characterized by pitches occurring simultaneously and moving together with similar rhythm in a voice or a group of voices; a clear vertical relationship is present among pitches.

Homophonic Texture consists a melody with chordal accompaniment, or chordal harmony alone.

A **Harmonic Ostinato** is a short, repeated chordal accompaniment pattern which is intended to be performed along with a melody.

Objectives:

Students will define and identify visual/aural examples of Chords, Chordal Harmony, Homophonic Texture (melody plus chords in independent voices), and Harmonic Ostinati.

Students will participate in singing/listening and classroom instrument activities which demonstrate Chordal Harmony, Chords, Homophonic Texture (melody plus chords in independent voices), and Harmonic Ostinati.

Lesson Segment 5: Pure Homophonic Texture, Mixed Texture

Date: March 5, 1999

Requisite Concepts:

Homophonic Texture (pure homophony), and Mixed Texture.

Definitions:

Mixed Texture consists of multiple melodic voices plus chordal harmony; both vertical and horizontal relationships are present among notes in different voices.

Objectives:

Homophonic Texture (pure homophony), Mixed Texture – Students will define and identify visual/aural examples of Homophonic Texture (pure homophony), and Mixed Texture.

Students will participate in singing/listening, and classroom instrument activities which demonstrate Homophonic Texture (pure homophony), and Mixed Texture.

Lesson Segment 6: Review All Textures

Date: March 8, 1999

Requisite Concepts:

All previously encountered musical textures and concepts.

Definitions:

All previous terminology.

Objectives:

Students will identify and compare textural characteristics of visual/aural musical examples and activities using appropriate terminology.

Students will demonstrate an ability to transfer knowledge of textural characteristics to unfamiliar musical examples which varying in their degree of similarity to those previously encountered.

APPENDIX C

SONG ACTIVITIES AND MUSICAL EXCERPTS

	Title/Format/Artist-Composer	Source	In-Class		Web Sites	
			Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
129	Lesson 1A – Introduction to Musical Texture, Monophonic Texture – Song Activities					
	"Merrily We Roll Along"/ unison	traditional (MIDI)			8	20
	"Joshua Fit the Battle of Jericho"/ unison	Share the Music 6 p. 76 (MIDI)	8		8	20
	"Joshua Fit the Battle of Jericho"/ octaves	Share the Music 6 p. 76 (MIDI)	8		8	20
	"This Train"/ unison	Share the Music 5 p. 58 (MIDI)	8		8	20
	Lesson 1B – Introduction to Musical Texture, Monophonic Texture – Listening					
	"Up the Noran Water" / Jean Redpath	"Fine Song for Singing" Philo, track 2		39		
	solo bassoon excerpt	Share the Music 4 p. 214 CD 2-12		37		17

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 1B (continued)					
"Jesus Christ the Apple Tree" / Cambridge Singers-Poston	"Faire is the Heaven" Collegium, track 22		28		
"Open Now Mine Eyes" / Cambridge Singers-Rutter	"Gloria" Collegium, track 11	5	21	5	14
"Mañana Iguana" / Bobby McFerrin	Share the Music 4 p. 4 CD 1-8		53		
"Variations on English Nightingale" / recorder solo	Share the Music 4 p. 41 CD 1-34		29		18
"Christus vincit" / Cambridge Singers-chant	"Bro. Sun, Sister Moon" Amer. Gram., track 6a	8	28	8	30
"Joshua Fit the Battle of Jericho" / unison	Share the Music 6 p. 76 CD 2-12			8	11
Lesson 2A -- Polyphonic Texture, Partner Songs -- Song Activities					
harmony example	original (MIDI)	4		4	8
Partner Songs: "O When the Saints," "Swing Low," "This Train"	Share the Music 5 p. 182 (MIDI)	4		4	45

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 2A (continued)					
"Oh Be Joyful"/Sleeth with countermelodies	Integ. Music p. 132-33 (MIDI)	8		8	80
Partner Songs: "Rock-a My Soul," "He's Got the Whole World"	traditional (MIDI)			24	60
Lesson 2B – Polyphonic Texture, Partner Songs – Listening					
harmony example	original (MIDI)	4		4	8
"Kyrie" / Palestrina	Music Connect. 8 p. 174 CD 7-19		62		
"Brandenburg Concerto No. 2, mvmt. 3"/J. S. Bach	Share the Music 5 p. 390 CD 9-33		67		30
"Minuet in G" / W. A. Mozart	Share the Music 3 p. 358 CD 9-7	16	87	16	22
"Suite No. 2 in F, 4th mvmt." / Eastman W Ens.-Gustav Holst	"Vaughan Williams, Holst & Grainger"		32		
"The Stars and Stripes Forever" / Air Force Res.-J. P. Sousa	"Time of War, Time of Peace" track 14		37 & 36		31

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 2B (continued)					
"Symphony No. 7, Scherzo" / Bruckner	Music Connect. 8 p. 34 CD 2-10		73		
"Old Joe Clark" / choral arrangement	Share the Music 6 p. 396 CD 10-25		113		
Partner Songs: "Rock-a My Soul," "He's Got the Whole World"	traditional (MIDI)			24	60
Lesson 3A – Polyphonic Texture, Rounds, Canons, Melodic Ostinati, Imitation -- Song Activities					
"Row, Row, Row Your Boat" / round	Music Connect. 7 p. 93 (MIDI)	10		10	19
"Are You Sleeping?" / unison	Share the Music 3 p. 320	8			
"Are You Sleeping?" / round	Share the Music 3 p. 320 (MIDI)	5		22	54
"Hey, Ho! Nobody Home" / with melodic ostinato	Share the Music 4 p. 325 (MIDI)	8		8	62
"Every Night When the Sun Goes In" / imitation	Share the Music 3 p. 204	16			

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 3A (continued)					
"O Music, Sweet Music"/round	traditional (MIDI)			21	41
Lesson 3B -- Polyphonic Texture, Rounds, Canons, Melodic Ostinati, Imitation -- Listening					
"Row, Row, Row Your Boat"/round	Music Connect. 7 p. 93 (MIDI)			10	19
"Brandenburg Concerto No. 2, mvmt. 3"/J. S. Bach	Share the Music 5 p. 390 CD 9-33		31		
"Eine kleine Nachtmusik, mvmt. 3"/Academy St. Martin in the Fields-Mozart	"Eine kleine Nachtmusik" Musical Heritage Society track 3		18		
"Alleluia"/canon/ W. A. Mozart	Share the Music 6 p. 98 CD 2-33		121	24	29
"Fortune"/unison	Share the Music 6 p. 342 CD 9-7	4	10		
"Fortune"/canon	Share the Music 6 p. 342 CD 9-7	4	49	15	14
"Fugue in D Minor"/ J. S. Bach	Music Connect. 8 p. 64 CD 3-16	2.5	96	2.5	38

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 3B (continued)					
"In the Hall of the Mountain King"/Oslo Phil.-Edvard Grieg	"Peer Gynt," PD public domain		86		
"O musique"/ canon	Share the Music 6 p. 343 CD 9-8		52		
"Sonata in G Minor"/ Scarlatti	Share the Music 6 p. 119 CD 3-3		33		
"Pictures at an Exhibition, mvmt. 6"/NY Phil.-Mussorgsky	"Great Performances" CBS, track 10		49		
"This sweet and merry month of May"/King's Sing.-William Byrd	"All at once well met" EMI, track 35		38		
Lesson 4A -- Homophonic Texture, Chordal Harmony, Harmonic Ostinati -- Song Activities					
chordal harmony/ single voice example	original (MIDI)	3		3	8
chordal harmony/ 4 voice example	original (MIDI)	3		3	8
"Simple Gifts"/ with chordal accomp.	Share the Music 4 p. 235 (MIDI)	9		9	66

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 4A (continued)					
"Hey, Ho! Nobody Home" / with harmonic ostinato	Share the Music 4 p. 325 (MIDI)	8		8	20
"Oh When the Saints" / with chordal accomp.	Share the Music 5 p. 162 (MIDI)			9	22
Lesson 4B – Homophonic Texture, Chordal Harmony, Harmonic Ostinati – Listening					
chordal harmony/ single voice example	original (MIDI)	3		3	8
chordal harmony/ 4 voice example	original (MIDI)	3		3	8
"Concerto in C Major for Sopranino Recorder, Harpsichord, and Strings" /Vivaldi	Music Connect. 8 p. 320 CD 8-13		25		
"Three Score Set" /William Schuman	Music Connect. 8 p. 51 CD 3-1	12	28	12	15
"Tortoises" from Carnival of the Animals/Saint Saëns	Share the Music 6 p. 63 CD 2-4	6	116	6	35
"Mazurka" / Chopin	Share the Music 6 p. 109 CD 2-39		41		

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 4B (continued)					
"Entrada" from Indian Queen/ Purcell	Share the Music 2 p. 42 CD 1-37		37		
"In a Mountain Path"/ Oriental	Share the Music 4 p. 76 CD 2-19		26		
"Heart and Soul"/ piano	Share the Music 6 p. 94 CD 2-30		55		
"Trois Gymnopédies"/ Queffélec-Eric Satie	"Satie: Piano Music" Virgin Classics		54		21
"Sabre Dance"/Sitkovetsky & Gililov-Khachaturian	"Danses nobles et sent." Virgin Classics		44		
Lesson 5A – Pure Homophonic Texture, Mixed Texture – Song Activities					
"America"/ chordal voices	Music Connect. 8 p. 152 (MIDI)	14		14	26
"Down the River"/ chordal accomp.	Share the Music 5 p. 156	8			
"Down the River"/ chordal voices	Share the Music 5 p. 156 (MIDI)	8		8	47

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 5A (continued)					
"Are You Sleeping?" / harmonic ostinato	Share the Music 3 p. 320	8			
"Are You Sleeping" / canon plus harmonic ostinato	Share the Music 3 p. 320 (MIDI)			10	25
"We Shall Overcome" / chordal voices	Music Connect. 8 p. 164 (MIDI)			15	37
Lesson 5B – Pure Homphonic Texture, Mixed Texture -- Listening					
"Something Within Me" / Take 6	"So much 2 say" Reprise, track 5		33		
"In the Good Old Summertime" / Barbershop	Share the Music 3 p. 270 CD 7-32		48		
"America" / chordal voices	Music Connect. 8 p. 152 CD 6-22	14	25	6	12
"Sonata No. 10 in G Major, mvmt. 2" /Kempff-Beethoven	"Die Klaviersonaten" Deutsche Gram., track 12	8	42	8	19
"Gloria Patri" / brass choir	Share the Music 2 p. 180 CD 4-10		33		

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 5B (continued)					
"Danny Boy" / Swingle Singers	"Around the World" Virgin Classics, track 12		88		
"Acte III Symphony" from Indian Queen/H. Purcell	Share the Music 2 p. 48 CD 2-7		46		
"Oh How Lovely is the Evening" / round plus accomp.	Share the Music 6 p. 336 CD 8-37		99		21
"We Shall Overcome" / chordal voices	Music Connect. 8 p. 164 (MIDI)			15	37
Lesson 6A -- Review All Textures -- Song Activities					
"This Land is Your Land" / unison	Share the Music 3 p. 264 (MIDI)	17		17	40
"This Land is Your Land" / countermelody	traditional	17			
"This Land is Your Land" / melody plus countermelody	traditional (MIDI)	10		17	40
"This Land is Your Land" / harmonic ostinato	traditional	8		8	

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 6A (continued)					
"This Land is Your Land" / melody plus harmonic ostinato	traditional (MIDI)	13		17	40
"This Land is Your Land" / 2 melodies plus chords	traditional (MIDI)	8		17	40
"Down the River" / chordal voices	Share the Music 5 p. 156	8			
"Sing Out" /round	Music Connect. 8 p. 173	9			
"Hey, Ho! Nobody Home" / with harmonic ostinato	Share the Music 4 p. 325	8			
"Joshua Fit the Battle of Jericho" / octaves	Share the Music 6 p. 76	8			
"Oh Be Joyful" /Sleeth with counter melodies	Integ. Music p. 132-33	8			
Lesson 6B -- Review All Textures -- Listening					
"Amazing Grace" /solo voice	Music Connect. 8 p. 69 "What...hear?" CD 3-17	14	40	14	20

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 6B (continued)					
"Minuet in G"/ W. A. Mozart	Share the Music 3 p. 358 CD 9-7	16	20	16	22
"Break Forth O Beauteous Heavenly Light"/J. S. Bach	Music Connect. 8 p. 69 "What...hear?" CD 3-17	8	29	8	15
"Sonata No. 10 in G Major, mvmt. 2"/Kempff-Beethoven	"Die Klaviersonaten" Deutsche Gram., track 12			8	19
"Fortune"/ canon	Share the Music 6 p. 342 CD 9-7	8	49		
"Tortoises" from Carnival of the Animals/ Saint Saëns	Share the Music 6 p. 63 CD 2-4	6	54		
"Christus vincit"/ Cambridge Singers-chant	"Bro. Sun, Sister Moon" Amer. Gram., track 6a	8	28		
"A New Year Carol"/ Benjamin Britten	Share the Music 5 p. 326 CD 8-7		27		
"Pictures at an Exhibition, mvmt. 6"/NY Phil.-Mussorgsky	"Great Performances" CBS, track 10		27		
"Suite No. 2 in F, 4th mvmt."/ Eastman W Ens.-Gustav Holst	"Vaughan Williams, Holst & Grainger"		32		

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Lesson 6B (continued)					
"Pictures at an Exhibition, mvmt. 10"/NY Phil.-Mussorgsy	"Great Performances" CBS, track 15		30		
"Halleluia" Chorus from Messiah/Handel	Share the Music 4 p. 359 CD 9-36		79		
Pretest/Posttest and Transfer Test Excerpts					
"O Music, Sweet Music"/round	traditional	20			
"America"/chordal voices	Music Connect. 8 p. 152	6			
"Oh How Lovely is the Evening"/melody in octaves	Share the Music 6 p. 336	18			
"Hanukah is Here"/melody plus chords	Integ. Music p. 174	4			
"The Water is Wide"/melody alone	traditional	9			
Partners: "All Night," and "Swing Low"	Integ. Music p. 140	8			
"Jubilate Deo"/canon	Share the Music 6 p. 336 CD 8-38		45		

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Pretest/Posttest and Transfer Test Excerpts (continued)					
"Lion Sleeps Tonight" / solo voice plus chordal voices	Share the Music 6 p. 348 CD 9-18		45		
"Alleluia" / Cambridge Singers-chant	"Bro. Sun, Sister Moon" Amer. Gram., track 1a		27		
"All Alone or Shifting Densities" / partner songs	Music Connect. 8 p. 69 CD 3-13		57		
"John O'Dreams" /solo voice/ Jean Redpath-Tchaikovsky	"Fine Song for Singing" Philo, track 11		38		
"Thou Knowest, Lord" / Cambridge Singers-Purcell	"Faire is the Heaven" Collegium, track 13		52		
"Dona Nobis Pacem" / canon	Share the Music 6 p. 336 CD 8-38		68		
"Finlandia" /Sibelius	Share the Music 5 p. 113 CD 3-10		31		
"Come Follow Me" / unison voices	Share the Music 6 p. 337 CD 8-39		22		
"Canzona" /Maschera	Music Connect. 8 p. 173 CD 7-17		47		

Title/Format/Artist-Composer	Source	In-Class		Web Sites	
		Printed Measures	Recorded Seconds	Printed Measures	Recorded Seconds
Pretest/Posttest and Transfer Test Excerpts (continued)					
"Song of Peace" / pure homophony	Share the Music 5 p. 119 CD 3-2		57		
solo oboe excerpt	Share the Music 4 p. 214 CD 6-1		37		

APPENDIX D

PERMISSION TO REPRINT COPYRIGHT-PROTECTED MATERIAL

Kenneth L. Liske
9989 Burbank Drive, #174
Baton Rouge, LA 70810
(225) 767-2515
kliske@lsu.edu

June 16, 1999

Suzanne Clayton
28 Callingham Road
Pittsford, NY 14534

Dear Ms. Clayton,

I am a Ph.d. candidate at Louisiana State University, researching instructional techniques in musical texture for preservice elementary education majors within the context of a music fundamentals course. I am writing to request permission to reprint one of your musical compositions in my doctoral dissertation, titled "The Effects of Type of Web-Support and Instructional Mode on the Knowledge and Discrimination of Musical Texture among Undergraduate Elementary Education Majors." The adopted text for the course is:

Integrating Music into the Elementary Classroom, by Anderson and Lawrence
4th edition, copyright 1998, Wadsworth Publishing

I would like to reprint the song "Hanukah is Here" (4 measures, included by permission on page 174 of Anderson & Lawrence) in its entirety on an exam for 60 students, and subsequently include the exam as an appendix in my dissertation. Your address was given to me by Susan Walters, Permissions Editor at Wadsworth Publishing.

If you will grant this permission, I would request a letter from you so that I can include your written consent in the dissertation, as well. I welcome any questions or comments you may have. You may contact me by mail, phone, or email as shown above, or by fax at LSU: (225) 388-3333.

Regards,

Kenneth L. Liske

2 E. Collingham Road
Roseton, NY 14534
June 18, 1999

Dear Kenneth,

You didn't ask my permission to use the
song "Hanukkah is Here!" Many ways to spend it!

My primary school classes love it! The
simple melody which they learned
in kindergarten. It lends itself to
simple accompaniments on xylophones
metallophones and glockenspiels. in
Norfolk made by part of the class while
others sing and dance repeating each
verse twice.

I used it to teach R+L directions,
stepping around in a circle, stamping
tstst to FFF! Hanukkah is here. On spin the
Reindeer, each twirled alone, avoiding
contact — stamp again, first spin R
then L. Finally dance together,
raise right hand, reach out to touch
another — whoever touches you is
your partner. Second time, left hand
up, touch a partner (or same partner
saves confusion) — dance. Finally
back in the circle for 1st verse.

(letter continues)

when Hanukkah arrived even the
Third grade wanted to do the routine
again.

Turns? Players go to circle to dance
 $\frac{1}{2}$ of dance to play instrument, etc.

A doctorate - you'll have your
doctorate. Ph.D. wonderful! Congratulations!

This song is regularly used by
Elementary Teachers in Webster, NY
and in Milwaukee, Wisconsin

Children's pleasure is the greatest
reward! No other required!

I'm sure creative teachers will
find other routines to give children
much needed exercise as well as
learnings needed.

God Bless You,

Suzanne Clayton

APPENDIX E

EXAMPLES OF IN-CLASS PRESENTATION MATERIALS

Texture Lesson 4 – Song Activities

Homophonic Texture -- Chordal Harmony, Harmonic Ostinati

1

Chords

A *chord* is a group of two or more notes performed together at the same time.



- The notes of a chord are vertically aligned.
- When chords are present, there is *harmony*, because two or more pitches occur at the same time.
- When chords occur in succession, one after another, there is *chordal harmony*.
- The notes of a chord may appear in a single voice, or across several voices or staves.

Chordal Harmony

2

In *Chordal Harmony*, pitches occur simultaneously in a voice or a group of voices, and move together with similar rhythms.

Chordal Harmony occurring in a single voice:



Chordal Harmony occurring across several voices:



Homophonic Texture

When chordal harmony is present, the texture is homophonic.



- Often in homophonic texture there is a melodic voice, and another voice or group of voices containing chordal accompaniment.

Homophonic Texture

Homophonic Texture consists of a melody with chordal accompaniment, or chordal harmony alone.

- One way to remember the term "homophonic" is to consider its parts:

"homo" + "phonic" = "homophonic"
 "same" + "sound" = "same sound"

Homophonic Texture

Melody plus chordal accompaniment.



C
A
F

I chord

G
E
C

V chord

Simple Gifts

melody

'Tis the gift to be sim-ple 'tis the gift to be free, 'Tis the

chords

continues...

melody

chords

4

gift to come down where we ought to be. And when we find our-selves in the

melody

chords

7

place just right, 'Twill be in the val-ley of love and de-light,

Homophonic Texture

6

Harmonic Ostinato

A *Harmonic Ostinato* is a repeated chordal accompaniment pattern which is intended to be performed along with a melody.

Harmonic Ostinato



Hey, Ho! Nobody Home

Musical notation for the song "Hey, Ho! Nobody Home". The notation is in treble clef with a key signature of one flat (B-flat). The melody is written on a single staff. The lyrics are written below the notes.

1 Hey, ho! no - bod-y home! Meet nor drink nor mon-ey have I none,

5 Still I will be ver - y, ver-y mer-ry. Hey, ho! no - bod-y home.

Texture Lesson 4 – Listening

Homophonic Texture -- Chordal Harmony, Harmonic Ostinati

1

Chords

A *chord* is a group of two or more notes performed together at the same time.



- The notes of a chord are vertically aligned.
- When chords are present, there is *harmony*, because two or more pitches occur at the same time.
- When chords occur in succession, one after another, there is *chordal harmony*.
- The notes of a chord may appear in a single voice, or across several voices or staves.

Chordal Harmony

2

In *Chordal Harmony*, pitches occur simultaneously in a voice or a group of voices, and move together with similar rhythms.

Chordal Harmony occurring in a single voice:



Chordal Harmony occurring across several voices:



Homophonic Texture

When chordal harmony is present, the texture is homophonic.



- Often in homophonic texture there is a melodic voice, and another voice or group of voices containing chordal accompaniment.

(Listen to the excerpt from "Concerto in C Major for Sopranino Recorder, Harpsichord, and Strings," by Vivaldi)

Homophonic Texture

Homophonic Texture consists of a melody with chordal accompaniment, or chordal harmony alone.

- One way to remember the term "homophonic" is to consider its parts:

"homo" + "phonic" = "homophonic"
 "same" + "sound" = "same sound"

Homophonic Texture

4

(Listen to the recording of "Three Score Set," by William Schuman)

Three-Score Set

W. Schuman



1



5



continues...

9

Homophonic Texture

5

(Listen to the excerpt from "Tortoises" from "Carnival of the Animals," by Saint Saëns)

Tortoises

The musical score is written for piano and bassoon. It consists of three systems of music. Each system has a piano part on the left and a bassoon part on the right. The piano part is characterized by a slow, steady eighth-note accompaniment, with the right hand playing a melody of eighth notes and the left hand playing a similar pattern. The bassoon part is a single melodic line that follows the piano's melody. The key signature is one flat (B-flat), and the time signature is common time (C). The score is marked with '1', '3', and '5' at the beginning of each system, indicating measures. The word 'continues...' is written at the end of the third system.

Homophonic Texture

6

Here are some more excerpts in homophonic texture.
In each, listen for a melody plus chordal accompaniment.

(Listen to the excerpt from "Mazurka," by Chopin)

(Listen to the excerpt of "Entrada" from "Indian Queen," by Purcell)

(Listen to the excerpt from "In a Mountain Path" – Oriental)

(Listen to the recording of "Heart and Soul")

Harmonic Ostinato

A Harmonic Ostinato is a repeated chordal accompaniment pattern which is intended to be performed along with a melody.

(Listen to the excerpt from "Trois Gymnopédies," by Eric Satie)

(Listen to the excerpt from "Sabre Dance," by Khachaturian)

APPENDIX F

REPRESENTATIVE IMAGES FROM A PROGRESSIVELY DISCLOSED QUICKTIME MULTIMEDIA FILE

1. **Hey, Ho! Nobody Home**

The musical score for 'Hey, Ho! Nobody Home' is presented in two systems. The first system contains measures 1 through 4, and the second system contains measures 5 through 8. The music is written for a single melodic line on a treble clef staff. The lyrics are: 'Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none, Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.' The score is divided into four numbered sections: (1) melody alone, (2) Hey, ho! no - bod-y home!, (3) Meat nor drink nor mon-ey have I none, and (4) Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home. A QuickTime player interface is visible at the bottom of the image.

2. **Hey, Ho! Nobody Home**

The musical score for 'Hey, Ho! Nobody Home' is presented in two systems. The first system contains measures 1 through 4, and the second system contains measures 5 through 8. The music is written for a single melodic line on a treble clef staff. The lyrics are: 'Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none, Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.' The score is divided into four numbered sections: (1) melody alone, (2) Hey, ho! no - bod-y home!, (3) Meat nor drink nor mon-ey have I none, and (4) Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home. A QuickTime player interface is visible at the bottom of the image.

3.

Hey, Ho! Nobody Home

① Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

② Hey, ho, hey, ho! Hey, ho, hey, ho!

③ melody alone

④ Still I will be ver - y, ver-y mer-ry. Hey, ho! no - bod-y home.

Hey, ho, hey, ho! Hey, ho, hey, ho!

4.

Hey, Ho! Nobody Home

① Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

② Hey, ho, hey, ho! Hey, ho, hey, ho!

③ melody alone

④ Still I will be ver - y, ver-y mer-ry. Hey, ho! no - bod-y home.

Hey, ho, hey, ho! Hey, ho, hey, ho!

5.

Hey, Ho! Nobody Home

1 2 3 4

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

melodic ostinato alone

5 Still I will be ver - y, ver-y mer-ry. Hey, ho! no - bod-y home.

5 Hey, ho, hey, ho! Hey, ho, hey, ho!

6.

Hey, Ho! Nobody Home

1 2 3 4

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

melodic ostinato alone

5 Still I will be ver - y, ver-y mer-ry. Hey, ho! no - bod-y home.

5 Hey, ho, hey, ho! Hey, ho, hey, ho!

7.

Hey, Ho! Nobody Home

1 Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

3 Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.

5 melodic ostinato alone

Hey, ho, hey, ho! Hey, ho, hey, ho!

8.

Hey, Ho! Nobody Home

1 Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

3 Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.

5 melodic ostinato alone

Hey, ho, hey, ho! Hey, ho, hey, ho!

9.

Hey, Ho! Nobody Home

melody plus ostinato create harmony

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,
Hey, ho, hey, ho! Hey, ho, hey, ho!

Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.
Hey, ho, hey, ho! Hey, ho, hey, ho!

10.

Hey, Ho! Nobody Home

melody plus ostinato create harmony

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,
Hey, ho, hey, ho! Hey, ho, hey, ho!

Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.
Hey, ho, hey, ho! Hey, ho, hey, ho!

11.

Hey, Ho! Nobody Home

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

melody plus ostinato create harmony

Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.

Hey, ho, hey, ho! Hey, ho, hey, ho!

12.

Hey, Ho! Nobody Home

Hey, ho! no - bod-y home! Meat nor drink nor mon-ey have I none,

Hey, ho, hey, ho! Hey, ho, hey, ho!

melody plus ostinato create harmony


Still I will be ver - y, ver - y mer-ry. Hey, ho! no - bod-y home.

Hey, ho, hey, ho! Hey, ho, hey, ho!

APPENDIX G

EXAMPLES OF SUPPORTING WEB EXCERPTS

Visual-Only web support:


Texture Lesson 5
Pure Homophonic Texture, Mixed Texture
[\[Page 1\]](#) [\[Page 2\]](#) [\[Page 3\]](#)


Pure Homophonic Texture

Sometimes the notes in the melody voice and the chordal accompaniment voices move together with exactly the same (or very nearly the same) rhythm. Or the notes in all of the voices may move together without a definitive melody in any voice. When this happens, the texture is homophonic because there is chordal harmony:

≡ ≡ ≡ ≡ ≡

The example below is an example of pure homophonic texture because the voices move together in rhythm to create chordal harmony. Click the play arrow to hear the example.

America



Go on to [Page 2](#) of this lesson.

Lesson 5
[\[Page 1\]](#) [\[Page 2\]](#) [\[Page 3\]](#)

Audio/Visual web support:



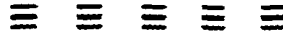
Texture Lesson 5

Pure Homophonic Texture, Mixed Texture

(Page 1) (Page 2) (Page 3)

Pure Homophonic Texture

Sometimes the notes in the melody voice and the chordal accompaniment voices move together with exactly the same (or very nearly the same) rhythm. Or the notes in all of the voices may move together without a definitive melody in any voice. When this happens, the texture is homophonic because there is chordal harmony:



The example below is an example of pure homophonic texture because the voices move together in rhythm to create chordal harmony. Click the play arrow to hear the example.

America

1 My coun-try! 'tis of thee, Sweet land of lib - er-ty, Of thee I

6 sing; Land where my fa - thers died, Land of the Pil - grims' pride,

11 From ev - 'ry moun - tain - side Let free - dom ring!



Go on to [Page 2](#) of this lesson.



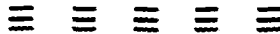
Texture Lesson 5

Pure Homophonic Texture, Mixed Texture

[Page 1] [Page 2] [Page 3]

Pure Homophonic Texture

Sometimes the notes in the melody voice and the chordal accompaniment voices move together with exactly the same (or very nearly the same) rhythm. Or the notes in all of the voices may move together without a definitive melody in any voice. When this happens, the texture is homophonic because there is chordal harmony:



The example below is an example of pure homophonic texture because the voices move together in rhythm to create chordal harmony. Click the play arrow to hear the example.

chordal harmony
all voices move together

America

1 My coun-try! 'tis of thee, Sweet land of lib - er - ty, Of thee I

6 sing; Land where my fa - thers died, Land of the Pil - grims' pride,

11 From ev - 'ry moun - tain - side Let free - dom ring!



Go on to [Page 2](#) of this lesson.

APPENDIX H
PRETEST/POSTTEST I: DEFINITIONS

Name: _____

Section: _____

Musical Texture Quiz I -- Definitions

Directions. Define each of the following terms.

1. Melody
2. Harmony
3. Chord
4. Partner Song
5. Round
6. Ostinato
7. Musical Voice
8. Monophonic Texture
9. Polyphonic Texture
10. Homophonic Texture

Pre/Post Definitions Answer Key:

1. A **Melody** consists of a series of single pitches in succession. In a melody, there is a horizontal relationship among pitches.
2. **Harmony** is characterized by pitches occurring simultaneously. When harmony is present, there is a vertical relationship among pitches.
3. A **Chord** is a group of two or more notes performed simultaneously.
4. **Partner Songs** are independent melodies which can be performed together to produce harmony.
5. A **Round** is a melody which can be performed by independent musical voices starting at different times to produce harmony.
6. An **Ostinato** is a short, repeating pattern (melodic, harmonic, rhythmic, movement) which is intended to be performed together with a melody.
7. A **Musical Voice** is an independent musical line which may be sung or played by one individual performer by a group of performers.
8. **Monophonic Texture** consists of a single melody alone.
9. **Polyphonic Texture** consists of several melodies performed together at the same time, resulting in harmony.
10. **Homophonic Texture** consists of a melody with chordal accompaniment, or chordal harmony alone.

APPENDIX I

PRETEST/POSTTEST II: PRINTED EXAMPLES

Name: _____

Section: _____

Musical Texture Quiz II -- Printed Examples

Directions. Refer to the printed musical excerpts on pages 7-10. Select the best answer for the questions below which refer to each printed musical excerpt. The questions are the same for each excerpt.

Printed Excerpt #1: "O Music, Sweet Music" (excerpt on pages 7-8)

-
- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Excerpt #2: "America" (excerpt on bottom of page 8)

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Excerpt #3: "Lovely Evening" (excerpt on page 9)

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Excerpt #4: "Hanukah is Here" (excerpt on bottom of page 9)

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Excerpt #5: "The Water is Wide" (excerpt on page 10)

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Excerpt #6: "All Night, All Day" (excerpt on bottom of page 10)

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Printed Musical Excerpt #1

O Music, Sweet Music

traditional

The musical score is written for three parts: Soprano, Alto, and Piano. It is in G major (one sharp) and 3/4 time. The lyrics are distributed across three systems of music.

System 1:

- Soprano:** O - Mu - sic, sweet - mu - sic, thy - prais - es we sing, And -
- Alto:** (rest)
- Piano:** (rest)

System 2:

- Soprano:** tell of the - pleas - ure and - glad - ness you bring.
- Alto:** mu - sic, sweet - mu - sic, thy - prais - es we sing, And -
- Piano:** (rest)

System 3:

- Soprano:** Mu - sic, Mu - sic, glad - ness you bring.
- Alto:** tell of the - pleas - ure and - glad - ness you bring.
- Piano:** mu - sic, sweet - mu - sic, thy - prais - es we sing, And -

continues...

Printed Musical Excerpt #1 (continued)

Mu - sic, Mu - sic. glad - ness you bring.

13 tell of the - pleas - sure and - glad - ness you bring. Mu - sic,

18 Mu - sic, glad - ness you bring.

Printed Musical Excerpt #2

America

traditional

1 My coun-try 'tis of thee, Sweet land of lib - er - ty, Of thee I sing.

Printed Musical Excerpt #3

Lovely Evening

traditional

1 Oh, how love - ly is the eve - ning, is the eve - ning.

7 When the bells are sweet - ly ring - ing, sweet - ly ring - ing:

13 Ding, dong, ding, dong, ding, dong!

Printed Musical Excerpt #4

Hanukah is Here

Words and Music by
Suzanne Clayton

1 2 3 4

Light the can-dles, Light the can-dles Light the can-dles Ha-nu-kah is here.

Reprinted by permission of Suzanne Clayton.

(Note: See Appendix D for permission statement.)

Printed Musical Excerpt #5

The Water Is Wide

Elizabethan
Folk Song

1 The wa-ter is wide, I can-not cross o'er, And nei-ther

4 have I wings to - fly, So give me a boat that will car - ry

7 two, And both shall row, my love and - i.

Printed Musical Excerpt #6

All Night, All Day

traditional

1 All night, all day, An - gels watch-ing o-ver me, my Lord.

1 Swing low, sweet char - i - ot, com-in' for to car - ry me home!

5 All night, all day, An - gels watch-ing o-ver me.

5 Swing - low, sweet char - i - ot, com-in' for to car - ry me home!

Pre/Post Printed Excerpts:

1. <Polyphonic> round/canon – “O Music, Sweet Music” (3 pt. canon, open score) [traditional round, from Hackett, p. 181] 20 meas.
2. <Homophonic> homorhythmic – “America” excerpt (4 pt. choral, closed score) [hymn tune, Music Connection 8, p. 152] 6 meas.
3. <Monophonic> unison voices – “Oh How Lovely is the Evening” (2 pt. unison voices, closed score) [German round, from Hackett, p. 143] 18 meas.
4. <Homophonic> melody with chords – “Hanukah is Here,” Suzanne Clayton (vocal melody, chordal accompaniment, keyboard score) [from Anderson & Lawrence, p. 174] 4 meas.
5. <Monophonic> solo melody – “The Water is Wide” (solo melody), [Elizabethan folk song, from Hackett, p. 301] 9 meas.
6. <Polyphonic> partner songs – “All Night, All Day/Swing Low, Sweet Chariot” excerpt (two melodies, two scores) [spirituals, from Anderson & Lawrence, pp. 140-141] 8 meas.

Pre/Post Printed Answer Key:

	Excerpt 1	Excerpt 2	Excerpt 3	Excerpt 4	Excerpt 5	Excerpt 6
1.	C	D	A	B	A	B
2.	B	A	D	C	D	B
3.	A, B	A, D	A	A, D	A	A, C
4.	C	B	D	B	D	C
5.	B	C	A	C	A	B

Pre/Post Printed Verbal Instructions:

1. The questions refer to the six printed examples at the end of the pretest.
2. The five questions are the same for each example.
3. For questions 1, 2, 4, and 5, choose the **BEST** answer; for question 3 throughout, write **ALL** answers which apply.
4. If you find a question difficult to answer, choose your best guess.

APPENDIX J

PRETEST/POSTTEST III AND TRANSFER TEST: LISTENING EXAMPLES

Name: _____

Section: _____

Musical Texture Quiz III -- Listening Examples

Directions. After you hear each listening excerpt, select the best answer for the questions which refer to it. The questions are the same for each excerpt. Each excerpt will be played twice.

Listening Excerpt #1

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #2

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #3

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #4

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #5

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #6

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #7

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #8

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #9

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #10

- _____ 1. How many different musical voices are present in this excerpt?
 - a. one
 - b. two
 - c. three
 - d. more than three

- _____ 2. The different musical voices move
 - a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice

- _____ 3. This excerpt contains (list all that apply):
 - a. a melody
 - b. a round
 - c. partner songs
 - d. chords

- _____ 4. This excerpt is an example of:
 - a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone

- _____ 5. The musical texture of this excerpt is best described as:
 - a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #11

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Listening Excerpt #12

- _____ 1. How many different musical voices are present in this excerpt?
- a. one
 - b. two
 - c. three
 - d. more than three
- _____ 2. The different musical voices move
- a. together as a group
 - b. independently of one another
 - c. one voice independently and other voice(s) as a group
 - d. there is only one musical voice
- _____ 3. This excerpt contains (list all that apply):
- a. a melody
 - b. a round
 - c. partner songs
 - d. chords
- _____ 4. This excerpt is an example of:
- a. several melodies plus chords
 - b. chordal harmony
 - c. several melodies together
 - d. a melody alone
- _____ 5. The musical texture of this excerpt is best described as:
- a. monophonic
 - b. polyphonic
 - c. homophonic
 - d. mixed

Pre/Post Listening Excerpts:

1. <Polyphonic> round/canon – “Jubilate Deo” (voices only canon) [Share the Music 6, p. 336, CD 8-38] 45 sec.
2. <Homophonic> melody with chords – “Lion Sleeps Tonight” (solo voice plus chordal voices) [Share the Music 6, p. 348, CD 9-18] 45 sec.
3. <Monophonic> unison voices – “Alleluia,” Gregorian Chant (unison voices) sung by the Cambridge Singers [from “Brother Sun, Sister Moon,” American Gramophone, track 1a] 27 sec.
4. <Polyphonic> partner songs – Musical example, “All Alone or Shifting Densities” (vocal, 4 partner songs) [Music Connection 8, p. 69, CD 3-18] 57 sec.
5. <Monophonic> solo – “John O’Dreams,” Caddick, Tchaikovsky (solo voice), Irish tune sung by Jean Redpath [from “A Fine Song for Singing,” Philo, track 11] 38 sec.
6. <Homophonic> homorhythmic – “Thou Knowest, Lord,” Henry Purcell (pure homophony) sung by the Cambridge Singers [from “Faire is the Heaven,” Collegium, track 13] 52 sec.

Pre/Post Listening Answer Key:

	Excerpt 1	Excerpt 2	Excerpt 3	Excerpt 4	Excerpt 5	Excerpt 6
1.	D	B	A	D	A	D
2.	B	C	D	B	D	A
3.	A, B	A, D	A	A, C	A	A, D
4.	C	B	D	C	D	B
5.	B	C	A	B	A	C

Transfer Test Listening Excerpts:

Test order is indicated by excerpt number (1-6)

Children's Song Listening Excerpts: Measuring near transfer for Group A (activities-experiential) and far transfer for Group B (listening).

3. <Monophonic> unison voices – "Come Follow me" (1st statement of round) [Share the Music 6, p. 337, CD 8-39] 22 sec.
5. <Homophonic> homorhythmic – "Song of Peace" (pure homophony) [Share the Music 5, p. 119, CD 3-2] 57 sec.
1. <Polyphonic> round/canon – "Dona nobis pacem" (voices only canon) [Share the Music 6, p. 336, CD 8-38] 68 sec.

Standard Literature Listening Excerpts: Measuring far transfer for Group A (activities-experiential) and near transfer for Group B (listening).

6. <Monophonic> solo instrument – solo oboe [Share the Music 4, p. 214, CD 6-1] 37 sec.
2. <Homophonic> melody with chords – "Finlandia," Sibelius (beginning recorded excerpt, orchestra) [Share the Music 5, p.113, CD 3-10] 31 sec.
4. <Polyphonic> "partner songs" – "Canzona," Maschera (Renaissance instruments, independent voices) [Music Connection 8, p. 173, CD 7-17] 47 sec.

Transfer Test Listening Answer Key:

	Excerpt 1	Excerpt 2	Excerpt 3	Excerpt 4	Excerpt 5	Excerpt 6
1.	D	B	A	D	D	A
2.	B	C	D	B	A	D
3.	A, B	A, D	A	A, C	A, D	A
4.	C	B	D	C	B	D
5.	B	C	A	B	C	A

Pre/Post/Transfer Test Listening Verbal Instructions:

1. The listening portion of the texture quiz is not for a grade.
2. The questions refer to the twelve short recorded excerpts which you will hear.
Each excerpt will be played twice.
3. The five questions are the same for each recorded excerpt.
4. For questions 1, 2, 4, and 5, choose the BEST answer; for question 3 throughout,
write ALL answers which apply.
5. If you find a question difficult to answer, choose your best guess.

APPENDIX K
DAILY QUESTIONS

Name: _____

Section: _____

MUS 2170
Texture Unit Written Questions #1
(Lesson 2)
February 26, 1999

Did you attempt to access the web support site for MUS 2170?

If so, were you successful?

From which location(s) did you attempt to access the site?

Once you found the web site, were the on-line instructions adequate and helpful?

Were the navigational aids (links from page to page) adequate?

Did the musical examples load successfully and quickly enough for you to view them?

Briefly describe any difficulties you had with the musical examples on the web site.

Please describe any difficulties you had with the web site or web access in general.

Name: _____

Section: _____

MUS 2170
Texture Unit Written Questions #2
(Lesson 3)
March 1, 1999

What is a musical voice?

At least how many musical voices are needed to perform a melody?

At least how many musical voices are needed to perform partner songs?

How many musical voices are present when male and female voices sing a melody together in octaves?

Which texture is represented by a single melody alone?

Which texture is represented by several melodies together?

What is the important difference between partner songs and counter melodies?

Describe the relationship among the pitches in polyphonic music. Is there a horizontal relationship, a vertical relationship, or both?

Name: _____

Section: _____

MUS 2170
Texture Unit Written Questions #3
(Lesson 4)
March 3, 1999

As of today, have you successfully viewed the web support site for MUS 2170?

From which LSU location(s) did you attempt to access the site:

- ☐ School of Music Computer Lab (SOM 232)
- ☐ Middleton Library Computer Labs
- ☐ ETS Computer Labs (Peabody 114, 116, 118)
- ☐ a dormitory computer lab
- ☐ another LSU location _____

Did you attempt to access the web site from your home computer?

If so, were you successful?

If you attempted to use your home computer, please describe your system and internet connection:

Type of Computer:	Operating System:	Modem Speed:
<input type="checkbox"/> Pentium II based PC	<input type="checkbox"/> Windows 95/98	<input type="checkbox"/> 14.4
<input type="checkbox"/> other PC	<input type="checkbox"/> Windows 3.1	<input type="checkbox"/> 28.8
<input type="checkbox"/> PowerPC Macintosh	<input type="checkbox"/> Mac System 7/OS 8	<input type="checkbox"/> 33.6
<input type="checkbox"/> other Macintosh	<input type="checkbox"/> other system	<input type="checkbox"/> 56K

If you know your computer's processor speed, write it here: _____ MHz

In general, did the musical examples load successfully and quickly enough for you to view them?

Briefly describe any difficulties you had with the musical examples on the web site.

Please describe any other difficulties you had with the web site or web access in general.

Name: _____

Section: _____

MUS 2170
Texture Unit Written Questions #4
(Lesson 5)
March 5, 1999

Can you remember a specific example of music that demonstrates each of these textures? Write the title(s) of the songs or describe them.

Partner Songs:

Counter melodies:

Round or Canon:

Imitation:

Melodic Ostinato:

Harmonic Ostinato:

Was it easier for you to remember any of these songs because of the examples contained on the web sites? If so, which ones?

Name: _____

Section: _____

MUS 2170
Texture Unit Written Questions #5
(Lesson 6)
March 8, 1999

Have you viewed the PRACTICE QUESTION pages for any of the texture lessons at the MUS 2170 web site?

If so, did the musical examples load successfully and quickly enough for you to view them?

Were the lesson materials on the web adequate for you to identify the texture of the musical examples on the practice pages?

Did the correct and incorrect response pages have adequate information and links for you determine why each answer was correct or incorrect?

Have the practice question pages helped you to prepare for the texture quiz?

APPENDIX L

WEB USE LOG

Name: _____ Section: 1 2 3

Web Use Log

Instructions: Be sure to record your use of the web materials for MUS 2170 accurately and honestly on this written log sheet after each web session. Keep track of the date, start and end times of each session, your point of access (for example: "School of Music Computer Lab"), and which lesson(s) and/or practice exercise(s) you visited. You will be required to turn in this log in class on **Wednesday, March 10** after the texture unit is completed.

Date:	Start Time:	Stop Time:	Point of Access (location):
_____	_____	_____	_____
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	

Date:	Start Time:	Stop Time:	Point of Access (location):
_____	_____	_____	_____
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	

Date:	Start Time:	Stop Time:	Point of Access (location):
_____	_____	_____	_____
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	

Date:	Start Time:	Stop Time:	Point of Access (location):
_____	_____	_____	_____
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

=====

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

=====

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

=====

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

=====

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

=====

Date: Start Time: Stop Time: Point of Access (location):

Lessons Visited:

1 2 3 4 5 6

Practice Exercises Visited:

1 2 3 4 5 6

Date:	Start Time:	Stop Time:	Point of Access (location):
<hr/>			
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	
<hr/> <hr/>			
Date:	Start Time:	Stop Time:	Point of Access (location):
<hr/>			
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	
<hr/> <hr/>			
Date:	Start Time:	Stop Time:	Point of Access (location):
<hr/>			
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	
<hr/> <hr/>			
Date:	Start Time:	Stop Time:	Point of Access (location):
<hr/>			
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	
<hr/> <hr/>			
Date:	Start Time:	Stop Time:	Point of Access (location):
<hr/>			
Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	
<hr/> <hr/>			
Date:	Start Time:	Stop Time:	Point of Access (location):
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Lessons Visited:		Practice Exercises Visited:	
1 2 3 4 5 6		1 2 3 4 5 6	

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APPENDIX M
ATTITUDE SURVEY

Section: 1 2 3

Musical Texture Unit Attitude Survey

Instructions: Circle your section number, but do not put your name on this page. Please circle a response to each statement below, which represents your feelings after completing the unit on musical texture.

1. I feel that I understand the concepts and terminology that apply to musical texture better than I did before completing this unit.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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2. I can identify the texture of a song when I see the printed music.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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3. I can identify the texture of a song when I hear it performed.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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4. The expectations for me to learn about musical texture were appropriate to the course.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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5. The in-class musical excerpts and activities helped me to understand texture better.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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6. The in-class musical excerpts and activities helped prepare me to for the Musical Texture Unit Quiz.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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7. The supporting materials on the web helped me to understand texture better.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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8. The supporting materials on the web helped prepare me to for the Musical Texture Unit Quiz.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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9. The supporting materials on the web were easier to understand than the in-class presentations.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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10. The supporting web site was well organized and easy to navigate.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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11. I did not have to wait too long for musical examples to download on the web site.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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12. I found it easy to gain internet access to the web support materials at school.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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13. I found it easy to gain internet access to the web support materials at a location other than school.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree	does not apply
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14. I felt prepared to use the web support site for this course.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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15. I viewed all of the supporting materials on the web for each lesson on texture as often as I could.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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16. I wish I had used the web-support site for this course more than I did.

strongly disagree	somewhat disagree	undecided	somewhat agree	strongly agree
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17. How many hours did you spend using the web-support site for this course?

MUS 2170 Student Information Sheet

VITA

Kenneth Lee Liske was born April 14, 1965, in Port Clinton, Ohio. He attended the Benton-Carroll-Salem Local Schools in Oak Harbor, Ohio, and graduated from high school there in 1983. In 1987, he received the degree of Bachelor of Music in music education and voice from Heidelberg College, Tiffin, Ohio. Mr. Liske taught K-12 public school music for nine years, including middle-level choral and classroom music in Oak Harbor and Tiffin, and high school choral music at St. Amant High School, in Ascension Parish, Louisiana. During this time, he also taught primary-level general and instrumental music, and assisted with secondary-level dramatic productions and marching band. In addition, he served as director of the Heidelberg College Singing Collegians show choir.

In 1997, Mr. Liske received the degree of Master of Music in music education from Bowling Green State University, Bowling Green, Ohio. There, he fulfilled graduate internships, assisting in the areas of computer-assisted instruction, remedial instruction in music theory, and summer preparatory workshops. His thesis project resulted in an instructional resource book, Musical Elements: A Classroom Method for Handchimes, which was published in 1998 by the American Guild of English Handbell Ringers, Dayton, Ohio.

Mr. Liske is a candidate for the degree of Doctor of Philosophy in music education at Louisiana State University, Baton Rouge. As a graduate

assistant there, he has taught music fundamentals for pre-service elementary education majors, and assisted with several courses in the undergraduate music education track. His doctoral studies have included additional coursework in the area of educational technology. In September, 1999, Mr. Liske will begin an appointment as Lecturer in Music Education at the University of Wisconsin Oshkosh. His duties there will include teaching courses in classroom and choral music education and supervising student teachers.

Mr. Liske has been active as an Ohio Music Education Association (OMEA) adjudicator and event chair, and has served on the OMEA Choral Music Selection Committee. While at Louisiana State University, he received the Excellence in Teaching Award for graduate assistants in the school of music. His professional affiliations include Music Educators National Conference, the American Choral Directors Association, the American Guild of English Handbell Ringers, the College Music Society, Kappa Delta Pi International Honor Society in Education, and Pi Kappa Lambda National Honor Society in Music.

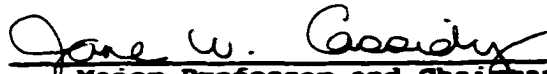
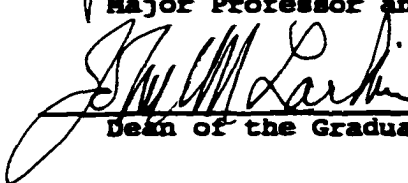
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Kenneth Lee Liske

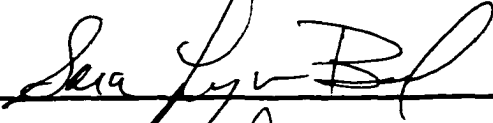
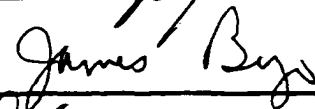
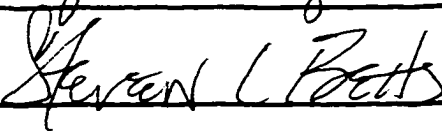
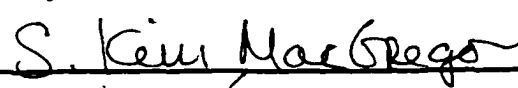

Major Field: Music Education

Title of Dissertation: The Effects of Type of Web Support and Instructional Mode on the Knowledge and Discrimination of Musical Texture among Undergraduate Elementary Education Majors

Approved:


Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

July 23, 1999

